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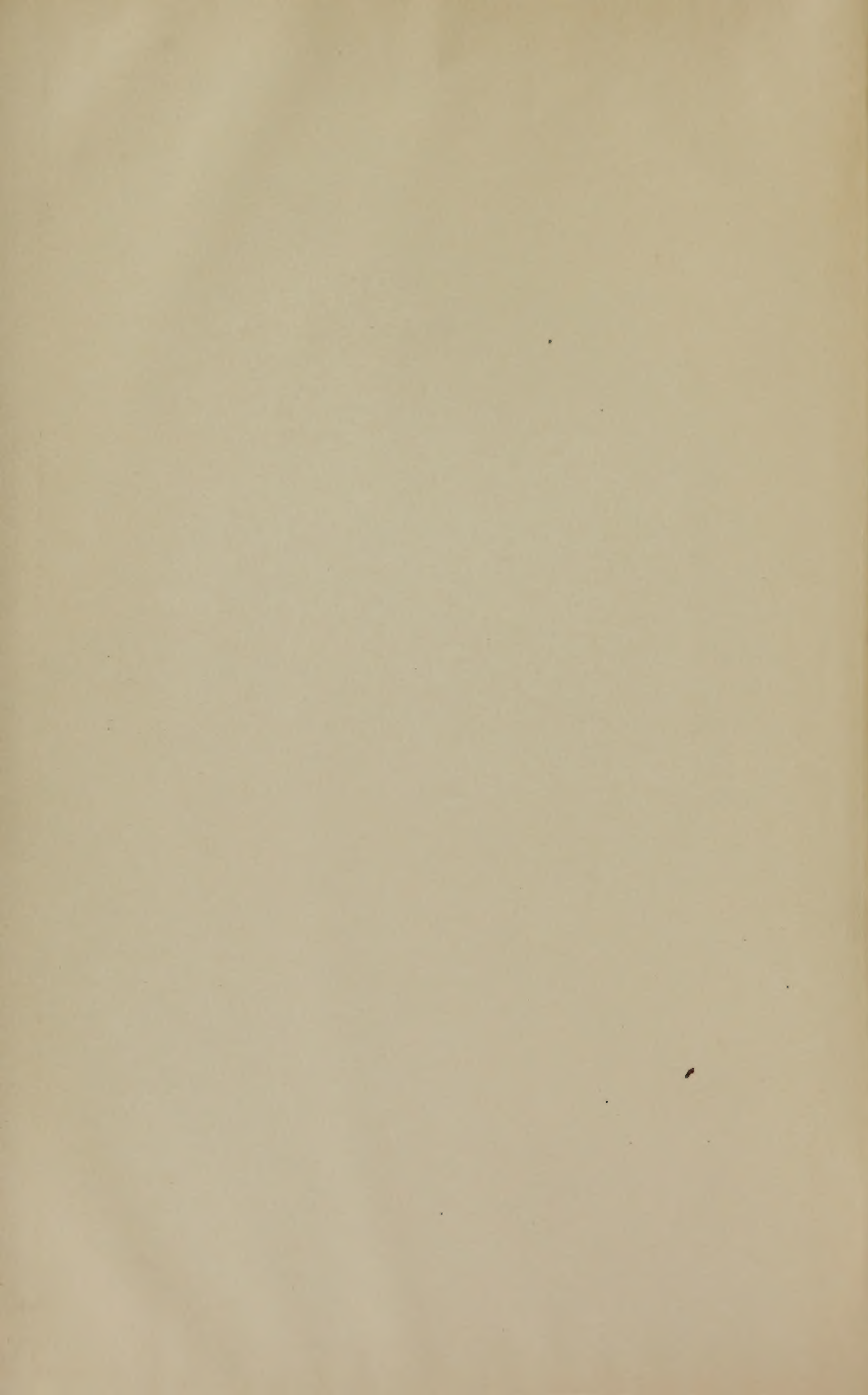
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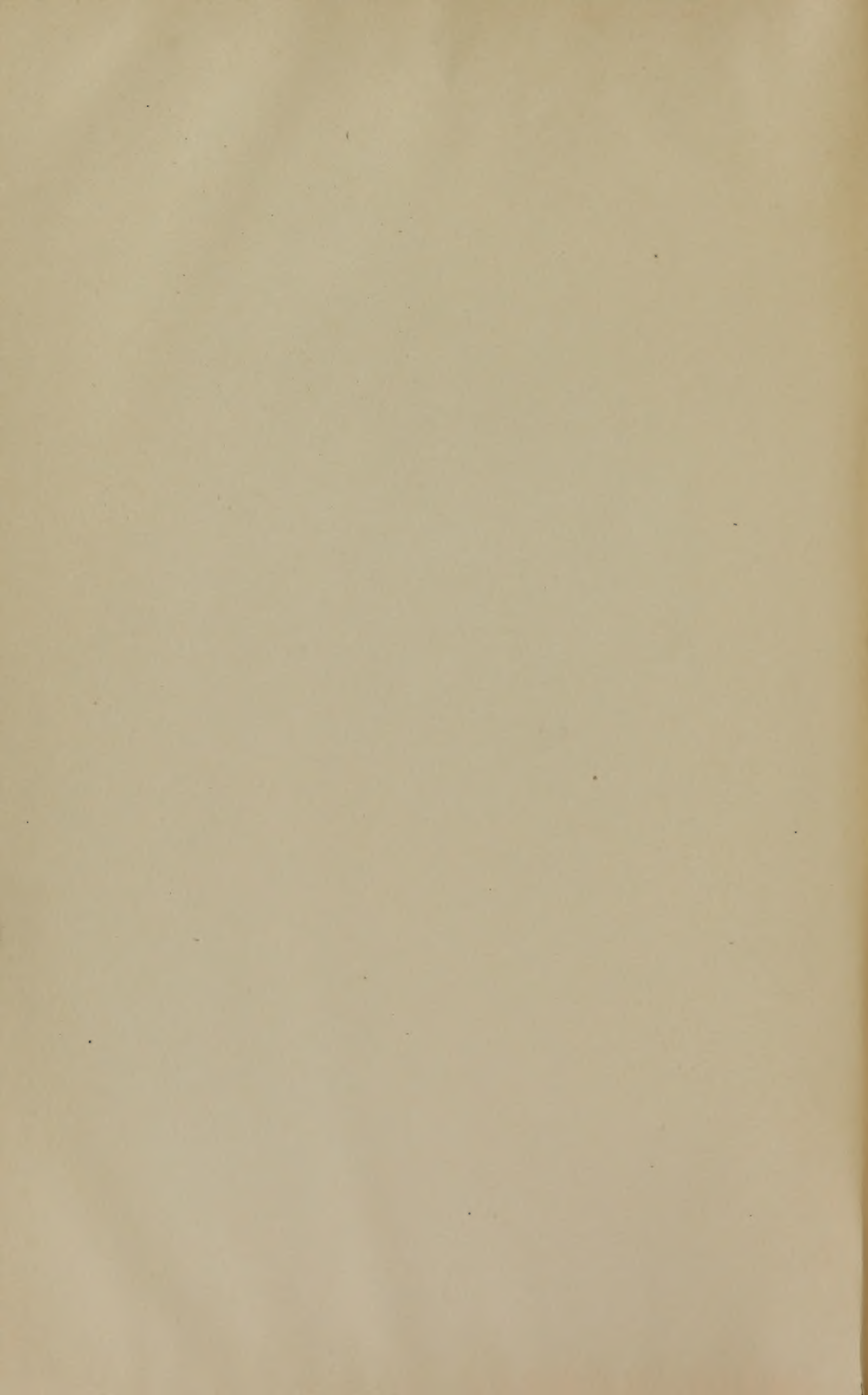








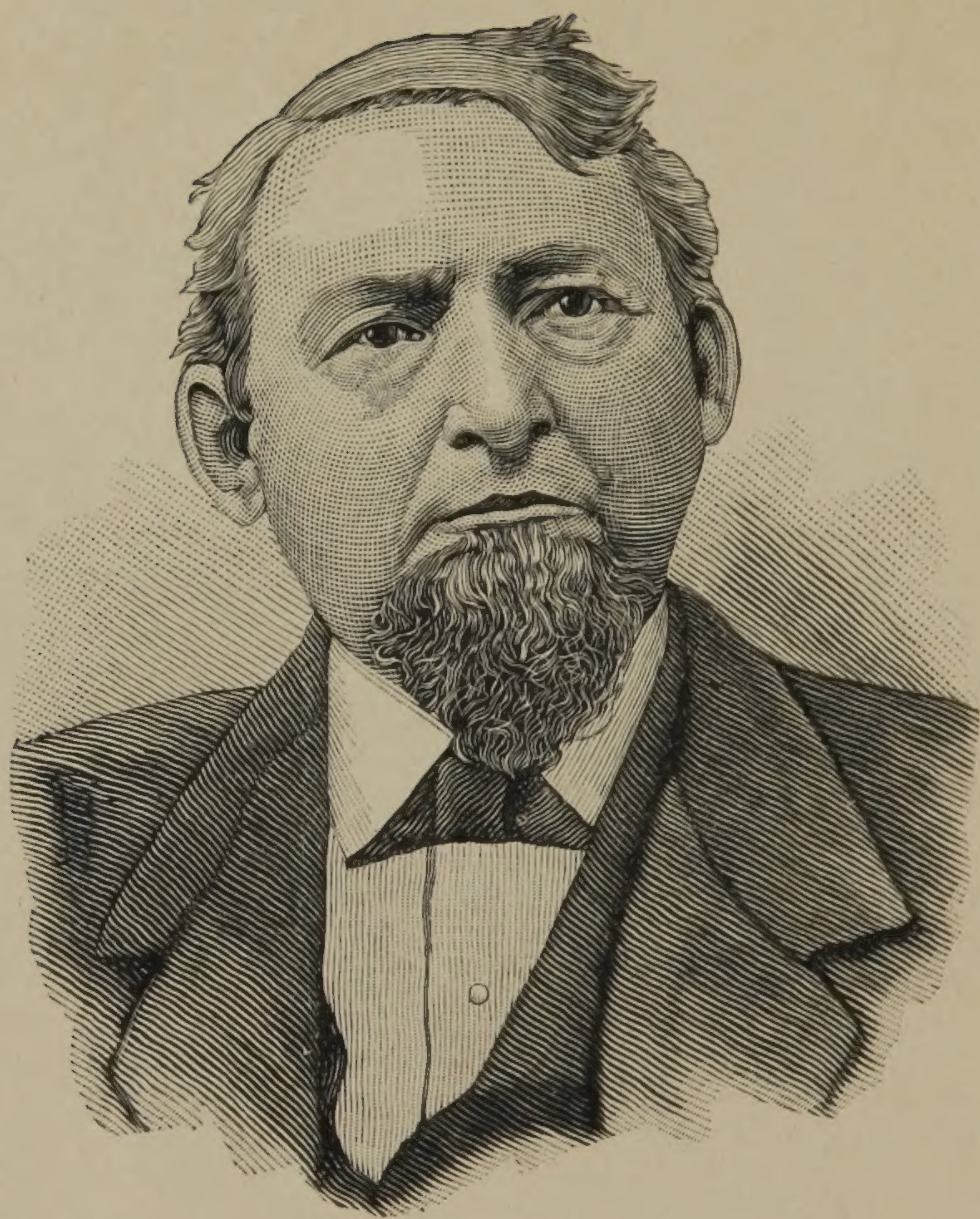












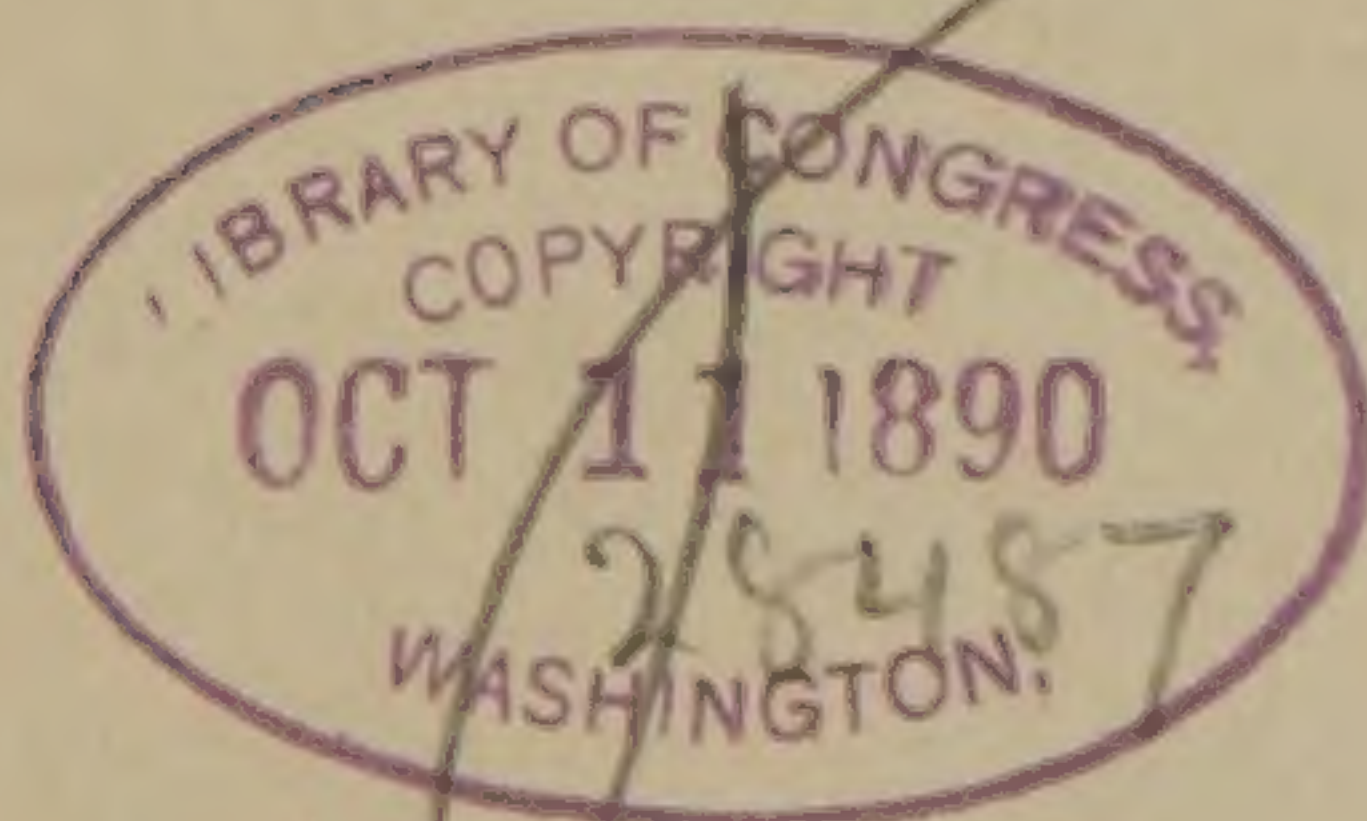


# OPERATIVE GYNÆCOLOGY.

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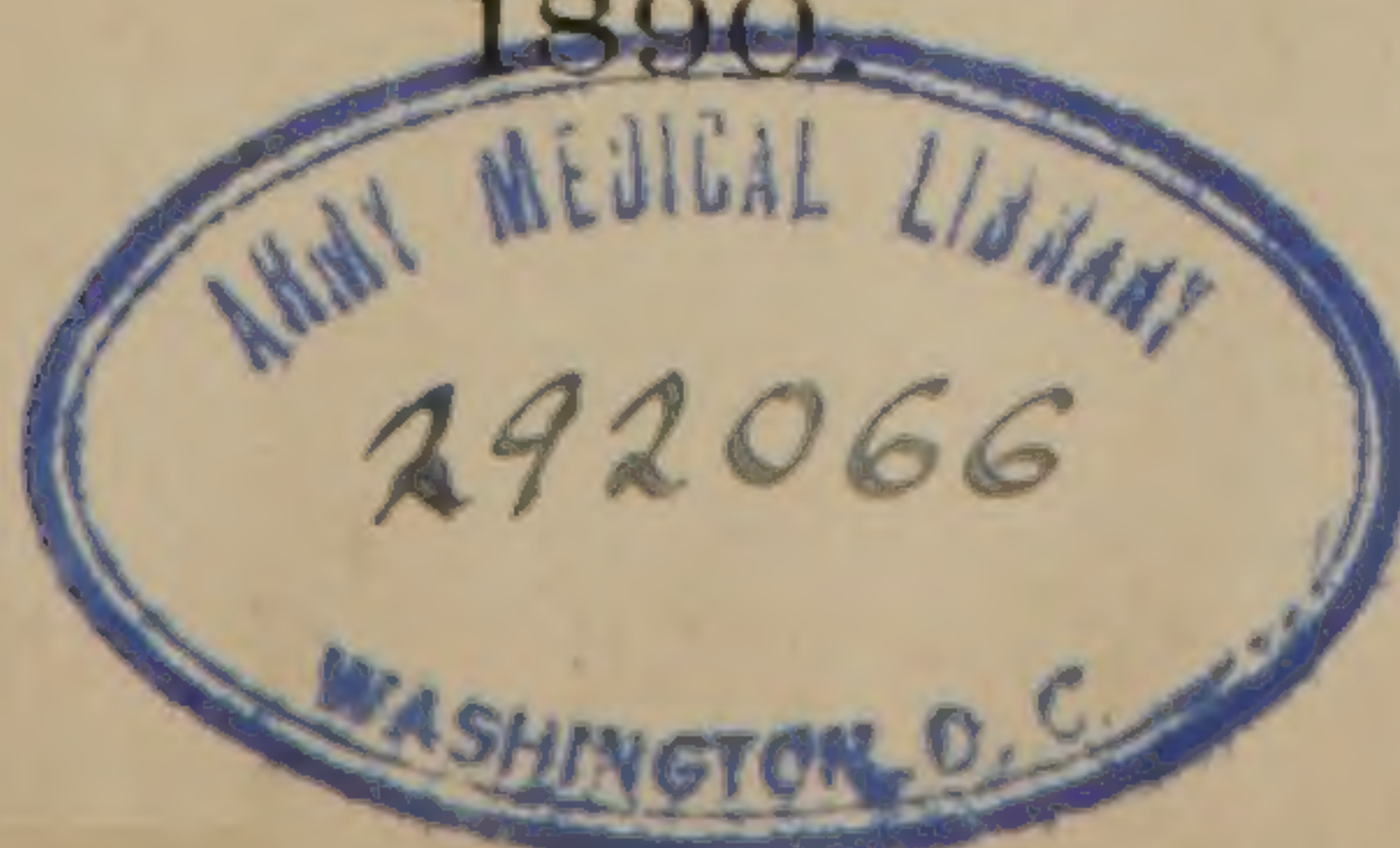
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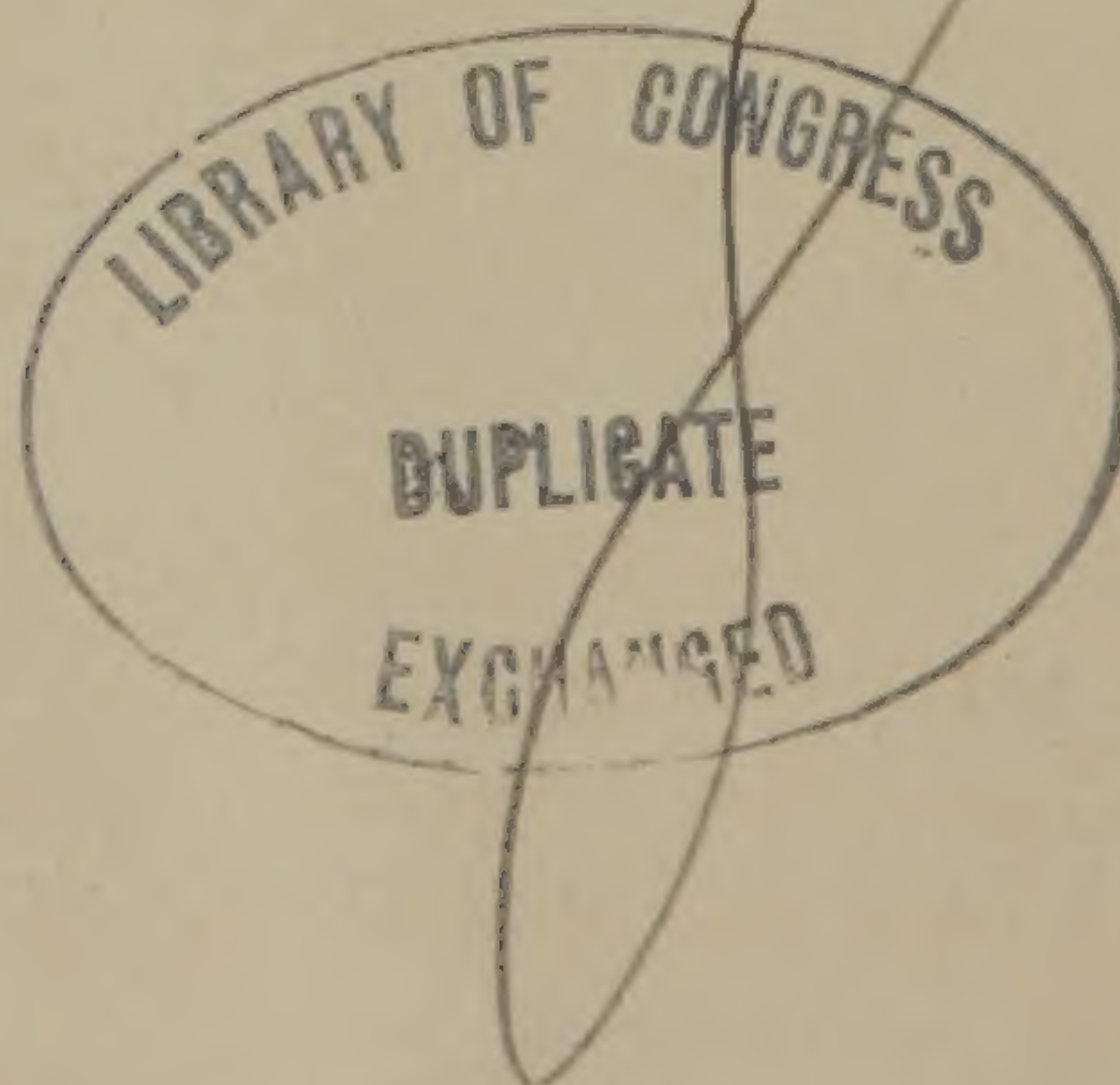
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## P R E F A C E.

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WHILE writing this work upon OPERATIVE GYNÆCOLOGY, it has been my aim and ambition to condense the material at command, and not to be diffuse. The bane of gynæcological writers in general is to be unreasonably verbose—one striving to outdo another in bulkiness of volume. Works on the diseases of women which attain the size of six or eight hundred pages, could, with advantage to the average reader, be condensed into half the space. A big tome is not an unquestioned sign of great merit. The physical proportions of a book should not alone attract attention.

In the production of this unpretending volume, I have had in view a simplicity of expression that is easily and readily comprehended by those who are taking first steps in the science of gynæcology. I have not always employed the simplest words, lest reiteration fatigue, and the style prove monotonous.

The language of gynæcology is famous for its dealings with technicalities. A familiarity with Latin and Greek derivations may help to unravel mysterious terms, yet the additional knowledge of Sanscrit and Scandinavian will not unlock all the mysterious expressions which have found a place in the literature of this comparatively new branch of medical science. The Germans have left the indelible imprint of their stalwart accentuation upon classical combinations, so that a Babel of tongues seems to commingle in gynæcological nomenclature. If the ordinary medical lexicon embraced the greater part of technical words employed, the student of medicine might hope to become familiar with their composition and meaning; yet a considerable proportion of them can only be found in voluminous dictionaries which are both rare and expensive. It would not be an unreasonable demand that every gynæcological author be compelled to furnish a glossary of whatever uncommon terms appear in his book. I confess to have used “abdominotomy” to signify the operation of opening the belly, instead of “laparotomy,” which means a laying open of the flanks, therefore an absurd term to signify opening the belly in the median line.

It may be cynically remarked that there is no occasion for a work on “Operative Gynæcology” to trench upon topics therapeutically peculiar to “Diseases of Women,” and my apology for such encroachment is that I could not do justice to my subject without saying



something of ovulation, menstruation, conception, and the like, inasmuch as there is more or less of an operative nature in the scientific management of functional aberrations. The treatment of menstrual stenosis is operative; the use of dilators is manipulative and surgical. "Operative" does not necessarily signify the use of a scalpel. Palpation, percussion, auscultation, and mensuration, are operative, though no cutting be done. The therapeutic gynæcologist may justly claim manipulation as among his "means and methods," but not to the exclusion of the surgeon's rights to the same professional attributes. In fact there is no well defined boundary between the duties of the therapist and the surgeon; but the one is ever trenching upon the confines of the other. The physician opens abscesses, and the surgeon prescribes medicines to allay pain and fever. There always is transition ground when it is hard to tell where therapeutics ends and surgery begins. In large cities where hospitals are devoted to special diseases a female patient may be sent the rounds of all before she finds the place where she belongs. A woman with abdominal tumefaction may be taken to a ward where ovariectomy is performed, and at length land in a lying-in room, where she properly belongs.

In private practice it would be scandalous in the extreme to declare that an unmarried woman is pregnant, when in fact she has an ovarian cyst or a uterine myoma developing; yet mistakes of the kind are far from uncommon. The practitioner of medicine may think such a blunder unpardonable, yet make it himself. Doctors should be critically conservative in expressing opinions which may reflect upon the chastity of their patients. In most instances it is safe to wait till a physiological enlargement unfolds itself. Be not in haste to do an injustice.

In no branch of gynæcology have such marvelous changes in professional opinions taken place as in regard to ovariectomy. When Spencer Wells visited Boston, some time after he had established the fact that the surgical removal of ovarian cystomata was legitimate, and warranted by the ratio of successful results, there were many reputable physicians in and about the city who, with expressions of disdain, refused to be introduced to him! Dr. Walter Burnham and Dr. Gilman Kimball, of Lowell, and Dr. Horatio R. Storer, of Boston, were branded as unprofessional characters for practising what had been demonstrated as unsafe and unsurgical. A man who would perform ovariectomy was a quack surgeon not to be recognized. On account of a senseless prejudice, an operation which was first scientifically performed by an American, ovariectomy was driven to Europe for recognition and development.

I have not spoken in the highest terms of Listerism, from the fact that the scheme, as a whole, is not worthy the commendations that have been bestowed upon it. While it was deemed, at first, as the *sine qua non* of abdominal surgery, the earliest blows carbolic spray



received were at the hands of the most skillful ovariologists. It was found that the potent antiseptics were irritating and poisonous, so that less favorable results were attained than when no antiseptics were utilized. Cleanliness is the best aseptic. In successful abdominalotomy, the peritoneum is to be kept dry and free from putrescent matter. Oozing blood and inflammatory exudates are to be washed away, or removed through drainage tubes. If the peritonitis be of a grade to be threatening, the abdomen is to be re-opened, and the inflamed membrane flushed or washed, and accumulating ferments removed by means of efficient drainage. A clean peritoneum is aseptic; pockets of putrescent or fermenting fluids can not be sweetened, but may be emptied and kept clean. The use of corrosive sublimate upon delicate and impressible membranes, must be a questionable procedure; and experience has shown that in any strength, however dilute, the drug is unfit to employ upon peritoneal surfaces. The agent being an efficient germicide, was reckoned as a good surgical antiseptic.

In the progressive history of ovariotomy, there has been much controversy over the best manner of treating the pedicle and the stump. At present the drift of authority seems to be in favor of the ligation of the short pedicle, and dropping the stump into the pelvis; and the suturing of the ligated long stump into the abdominal wound when it is closed. Cauterizing the traumatic stump before dropping it into the peritoneal cavity has several champions among ovariologists, but charring is not superior to the action of iodoform. The eschar following a burn is a source of worry. Large pedicles should be transfixed and ligated in parts. Such pedicles shrink so much that the ligatures should be drawn very tight. A braided silk thong is the strongest ligature in use. The temporary use of the Kœberle *serre nœud*, to indent a place for the ligature of silk, is to be commended in the strangulation of a large pedicle.

I have taken pains to explain the alleged advantages of the Sænger modification of the Cæsarian section, and the ease with which the Porro operation may be executed. In the same connection is depicted an easy and comparatively safe manner of performing hysterectomy to get rid of uterine myomata. The elastic cord or solid rubber rope does the strangulation, and two knitting needles hold the stump in conjunction with abdominal walls, till there is a sealed connection between the stump of the amputated uterus and the parietes of the opened belly. This method of executing hysterectomy is a decided advance upon the classic operation. Besides, it can be done by the novice in surgery.

The contribution to ectopic pregnancy is in accord with the latest views upon the subject, and quite within the range of the reader's comprehension. The views presented are largely those of Lawson Tait, the best authority upon extra-uterine pregnancy. He argues



largely from observation, and contends that ectopic fixations of the germ are tubal at the start, and not peritoneal or abdominal. He claims that in the growth of the ectopic foetus it bursts the tube, and drops between the layers of the broad ligament—becomes extra-peritoneal for the time, and finally breaks into the peritoneal cavity—becoming intra-peritoneal. The result of the second rupture is hemorrhage, and impending death. Safety depends upon abdominotomy, ligation of bleeding vessels, removal of *debris*, and drainage. The danger then is from peritonitis. The operation is one of the most dangerous in gynæcological surgery. In the event of “abdominal pregnancy,” which Tait admits to have occurred, the saving clause is in abdominotomy at term, removal of the child, and the leaving of the placenta *in situ*, or wherever it may have planted itself. The recuperative forces of the body will take care of the vivified after-birth and umbilical cord. The punis should be stripped before it be sewed into the abdominal wound. Its traumatic end is to be dusted with iodoform. There is then no traumatism inside the abdominal cavity, hence little danger from peritonitis. There are no “secundines” to be cared for. The membranes are blended with the peritoneum, and continue vivified till removed by absorption, or transformed into normal tissue. When the abdominal section is executed the incision is made through the peritoneum and blended chorion and amnion, yet the operator may not observe the conjunction.

I have ventured to introduce some observations on operative midwifery, not appreciating any impropriety in the course. I had utilized the illustrations in journalistic literature, and desire they should have more than an ephemeral existence. The matter is obstetrical, yet comes within the scope of operative gynæcology. In this material I have advocated the use of obstetric forceps when a labor becomes too tedious to be safely delayed. In making this departure from time-honored rules, I have opened a way to criticism, yet if I meet the approbation of friends, I can stand the animadversions of cavillers. Obstetricy and gynæcology are closely related; they trench upon each other's ground.



# OPERATIVE GYNÆCOLOGY.

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## SECTION I.

### FEMALE GENITAL ORGANS.

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THE pelvis, or pelvic girdle as it is called in comparative anatomy, is the skeletal frame-work to which the organs of generation are attached. The *external* genitals are chiefly supported by the pubic bones, while the *internal* organs are suspended within the pelvic basin, and rest in conjunction with the bladder and rectum. All mammals have well developed pelvic bones; and birds, reptiles and fishes have more or less of a pelvic girdle. Perch and bass exhibit rudimentary pelvic arches, yet the enclosure is far from complete. The menobranchus displays the transformation of ribs into haunch and pubic bones, with rude acetabula for the articulation of femurs.

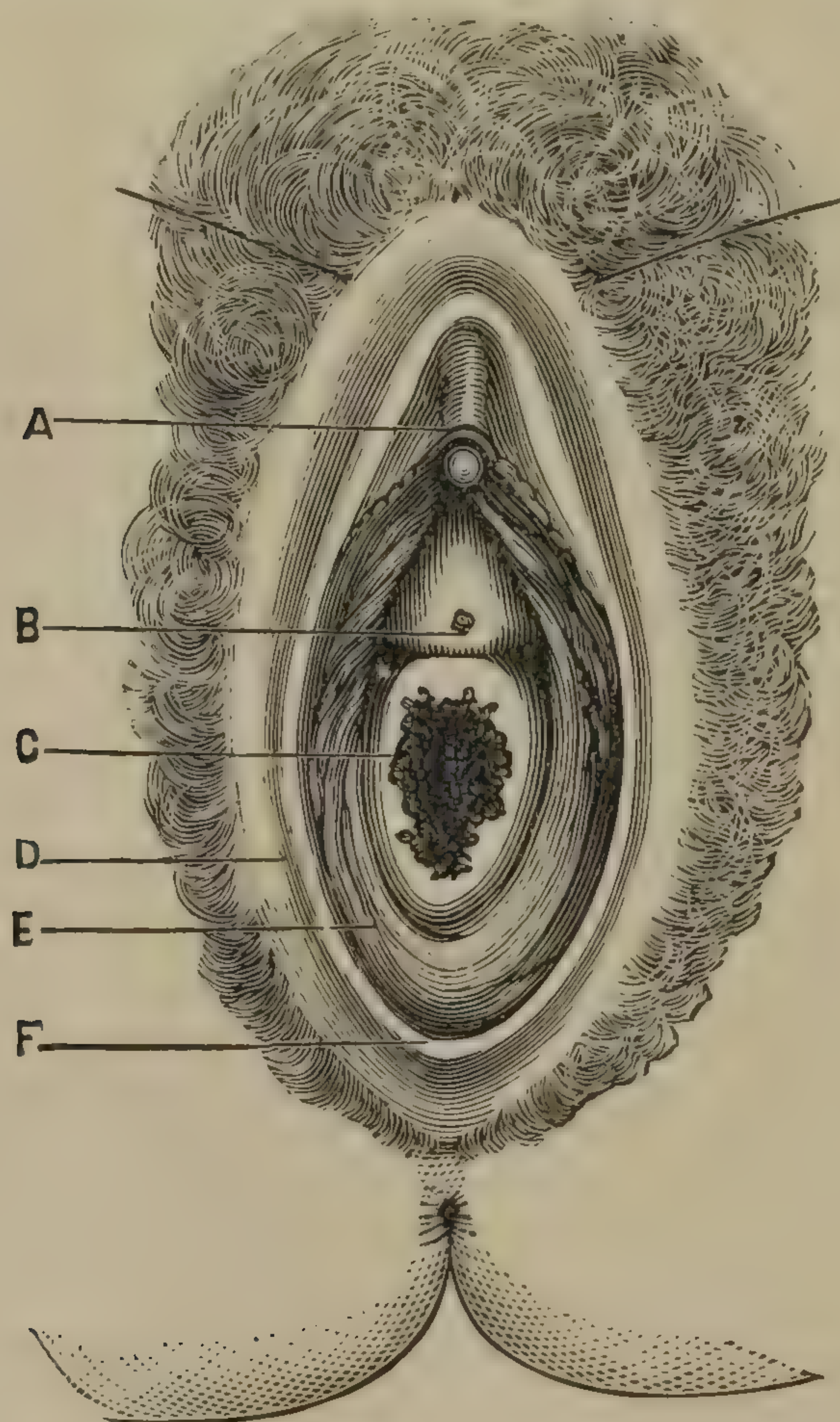
Elephants and most of the larger quadrupeds possess well shaped pelves, with bones corresponding to those in human haunches. The anchylosed symphysis pubis exists in all quadrupedal mammals. In the whale rudimentary pelvic bones only are present.

Monotremes, as the platypus, echidna and other Australasian animals which possess certain bird-forms, are endowed with a common *cloacum* for the discharge of urinary and fæcal waste, and to serve as a genital aperture. A woman with a vesico- and recto-vaginal fistula is reduced to the condition of a monotreme, except that she has no voluntary control over the evacuation of discharges. The bird is a monotreme, the urine escaping with fæces. Birds have large ova, hence they are not furnished with a firm pelvic girdle—there must be space for the extrusion of eggs of comparatively large size. The egg-shell of the African ostrich will hold a quart; and that of a hen two ounces.



## THE EXTERNAL GENITAL ORGANS.

The *external genitalia* of the human female are large at birth, but do not grow *pari passu* with the development of the juvenile girl. At puberty the lateral halves of the labia are not pronounced in size, but the pulpy tissue, chiefly fatty, which rests upon the pubic arch, becomes a lump, and takes the name of *mons veneris*. This at puberty is covered with a capillary display. *Pubes* and *pudor* signify youth, modesty and shame, hence modifications of these words are employed to express pudendal or sexual development, and pubescent displays of the external genitals.



EXTERNAL GENITALIA OF THE ADULT FEMALE.

A—represents the clitoris and its hood.

B—represents the meatus urinarius, with the vestibulum between it and the clitoris.

C—represents the hymen with a ragged aperture.

D—represents external labia.

E—represents internal labia.

F—represents fourchette.

The *outer labia* give fullness to the lateral boundaries of the genital fissure; and the tissues within embrace the terminal expansions of the round ligaments, which extend from the



sides of the uterus through the inguinal canals to the region of the pubic symphysis. The *inner labia*, or *nymphæ*, are constituted of folds of mucous membrane which conceal the vaginal aperture, and serve to furnish elastic structure to be utilized in the birth of a child. The *clitoris* is a highly sensitive organ situated in front of the pubic arch in the median line, and is covered with a hood-like fold of a highly sensitive membrane, which bears the name of *preputium clitoridis*. The folds are blended with the inner labia. The clitoris is endowed with keen sexual impressibility, hence is manipulated in masturbation. The *vestibule* or *vestibulum* is a somewhat triangular space of plain surface below the clitoris, yet embracing the *meatus urinarius*—the outlet of the urethra. And below the urethral orifice is the *ostium vaginæ*, or vaginal aperture, which is surrounded with an orbicularis muscle, acting more or less like a sphincter. The upper extremity of the genital fissure where the *labia majora* (outer labia) come together above, bears the name of *superior commissure*, and the lower joining of the labial borders is denominated *inferior commissure*. Just within the juncture is a perceptible fold of mucous membrane, called the *fourchette*. Between the inferior commissure and the fourchette is a boat-shaped depression named *fossa navicularis*.

The *perinæum* is a complex structure which constitutes the elastic floor of the pelvic basin. It reaches from the pubic arch above to the coccyx below, and to the rami of the ischium and pubes on the sides. The vaginal and anal apertures are in perinæal structures. The external genitals of the female have been denominated *vulva* to denote their folding nature. The term is general in its application, and does not designate a particular organ. The accoucheur in making an examination carries a finger to the *vulva* or genital fissure on its way to the vagina. A laceration from the inferior commissure of the *vulva* to the anus in delivery is designated a *ruptured perinæum*.

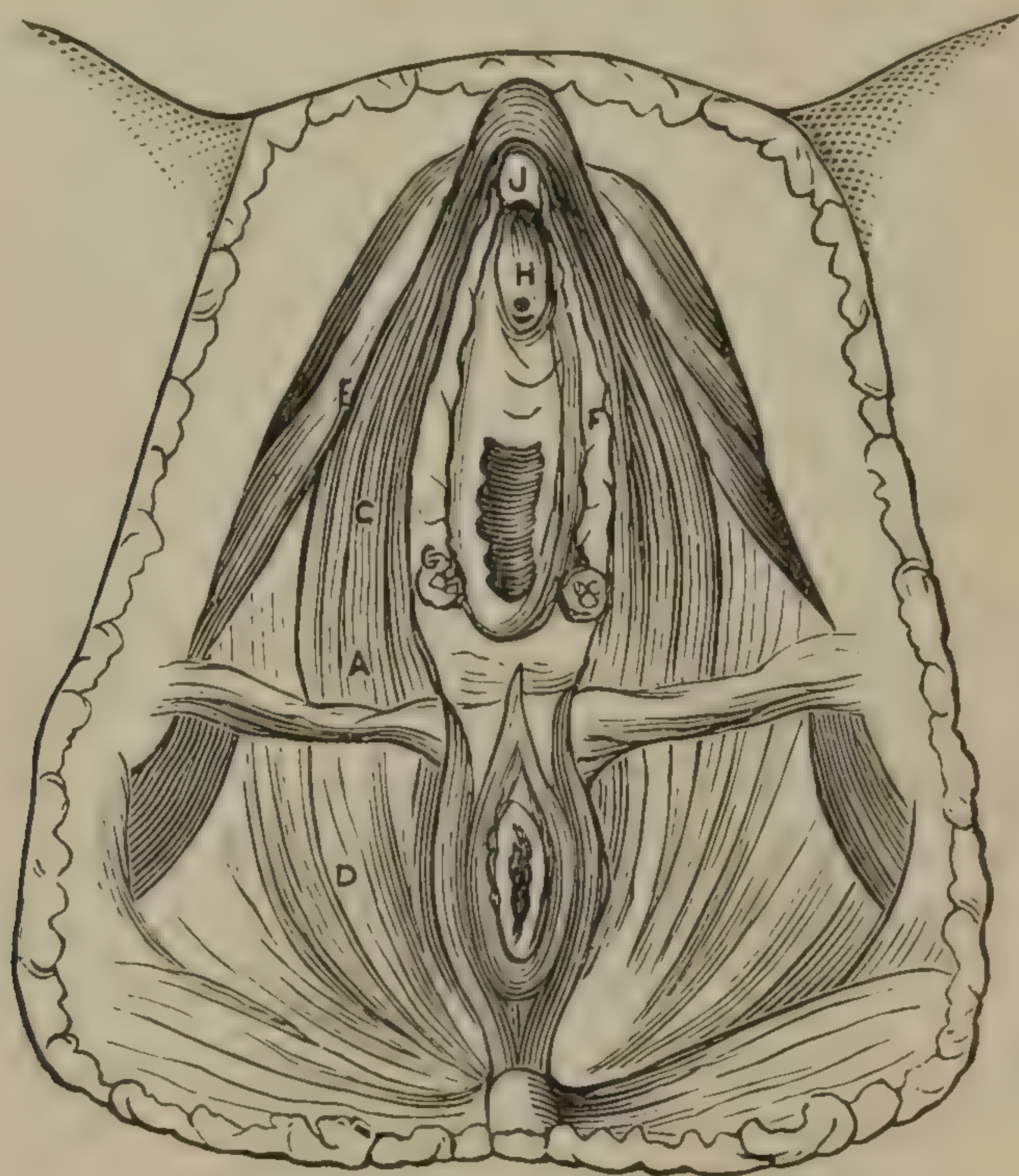
In the depths of the labia majora are glandular structures which have ducts leading to mucous outlets. When the canals become obstructed, abscesses are apt to be developed—relief calling for incisions.

The perinæum is traversed with muscular and elastic fascial tissue,—both being capable of great distension in the later stages of labor.

The urethra ends outwardly in a tubercle which can generally be discovered by the finger's touch; and a catheter can be directed into the canal and bladder as a medium of evacuation,



when necessary to empty the viscus. The female urethra is a little more than an inch in length, and its walls are quite distensible. Beneath the urethral meatus, in the orifice of the vagina, is a semilunar fold of mucous membrane which occludes the depths of the vulvar aperture. This fold or disk of mucous tissue is called *hymen*, and passes as a sign of virginity, though too much importance, as a seal of chastity, is ascribed to the virginal membrane. Sometimes it is thin and friable as paper, and occasionally dense enough to obstruct menstrual



Deeper anatomy of vulva, representing chiefly the muscles of the perinæum, both circular and transverse. The picture is borrowed from Savage.

discharges. There is no invariable shape to the hymen; it may be circular with an opening in the center, or cribriform. The crescentic form is the most common. Instead of a hymen there may be excrescences on each lateral border of the ostium vaginæ called *carunculæ myrtiformes*. They may exist in connection with a hymen, and are not therefore indicative of a ruptured hymeneal membrane.

There is more or less erectile tissue in the external genitalia, especially in the clitoris. The organs of the regions are highly endowed with nerves, blood-vessels, and lymphatics; and the integument of the locality is studded with follicles which secrete fluids having pronounced odors. The clitoris receives



vascular supplies from the internal pudic arteries, and in quantities to ensure hemorrhages in the event of amputation to get rid of localized cancer.

The *vagina* is a membranous tube leading from the vulva to to the neck of the uterus. It occupies a position between the rectum and the bladder, the urethra being buried in its upper walls or in close connection with it. The walls of the bladder and vagina constitute the *vesico-vaginal septum*; and corresponding structures posteriorly are denominated *recto-vaginal septum*. Beneath the pubic arch are some transverse *rugæ* which provoke the erotic sense in copulation.

The inner extremity of the vagina is attached to the outside of the *cervix uteri*, and the depth of the circular sulcus is now known as the *fornix* of the vagina. Although the vaginal walls are distensible, their linings rest in contact, so that no air ordinarily enters the cavity. In the event of uterine prolapsion the vaginal tube is thrown into loose and overlapping folds, the bladder joining in the descent.

In savage women the nymphæ project beyond the outer labia and hang loosely downward; and they are very dark in color. In infancy the labia minora are proportionally larger than the outer labia; but at puberty they retreat from view and become of a pinkish hue. In girlhood the vulva are in front of the pubes, but recede downward and backward as adult life is approached, leaving only the mons veneris in view.

A rigid contraction of the vagina has been denominated *vaginismus*, and may become a fit morbid condition for special treatment. The narrowed canal may be cicatricially constricted, or be the result of muscular contraction. Inflammatory adhesions may completely occlude the vaginal canal. A double vagina is not the rarest thing among anatomical variations, even when the uterus is not bifurcate.

The *os uteri* is the aperture commencing the cervical canal and cavity of the womb. The uterine *os* signifies the same as mouth; and is located nearly in the center of the neck as it projects into the vagina. However, the operculum may be situated near the anterior or posterior border, even on the very verge of the neck. A uterine sound can be made to enter the aperture, the left hand manipulating the implement while the forefinger of the right hand directs the entering end into the *os* and cervical canal.

At the first parturition the uterine cervix is usually torn laterally in two directions, converting the *os tincae* into antero-



posterior lips. Both flaps bulge outward, and become indurated. Their unnatural appearance led to the presumption that they were ulcerated. The operation of trachelorrhaphy was invented by Emmet to close the lateral rent or transverse fissure. However, the operation has fallen into disrepute, as it ought to do. It is better to amputate the fissured, distorted, and indurated cervix. In not a few instances the os uteri has been cauterized to arrest an imaginary ulceration, till the aperture became obliterated. In a case of the kind amputation of the cervix would be the only way out of the difficulty.

#### THE INTERNAL GENITAL ORGANS.

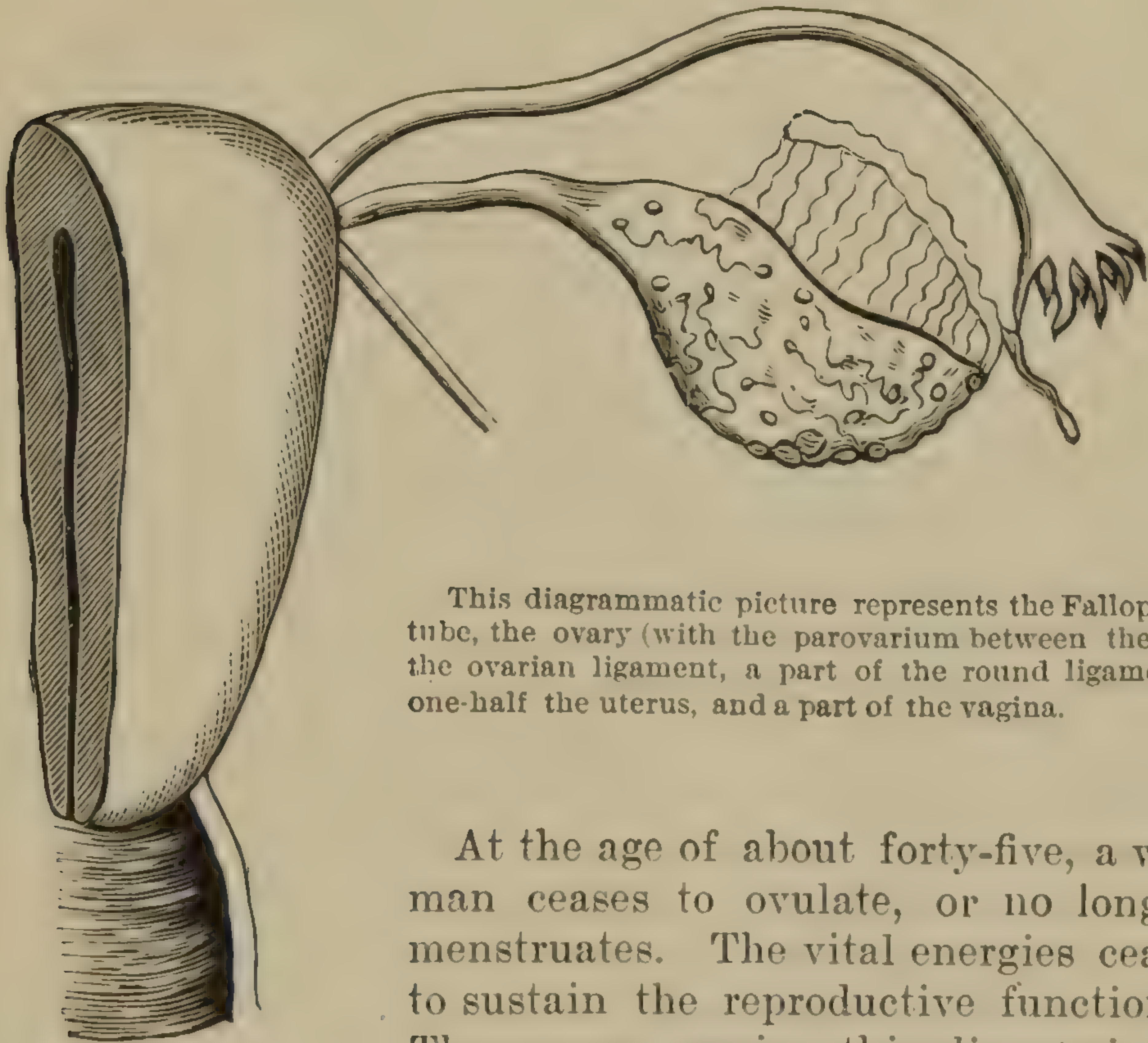
THE *uterus*, the *ovaries*, and the *oviducts* constitute the internal genitalia; and are most important organs in reproduction. The ovaries evolve ova after puberty; and the functions of the glandular bodies exercise a marvellous influence over the character of the possessor. The organs exist at birth, and ova begin to manifest their specific energies from the start.

At puberty an ovum matures in one of the ovaries, and bursts through its peritoneal envelope. The wound in the walls of the ovary as the ovum escaped from its bed, constitutes the *corpus luteum*. If a woman die while menstruating, and the ovaries be autopsically examined, the crypt that gave origin to the egg can be readily seen. The traumatic chasm is as large as half a pea, and bears the hue of vitelline matter and blood corpuscles. This is the corpus luteum of ovulation, but under the influence of impregnation the wound continues to grow and may appear larger than that of menstruation. However, the difference between the two appearances is not pronounced enough to be definitely determined. It would require strong corroborative evidence to settle the question of pregnancy.

The ovaries are situated behind the *broad ligament*, as a duplicature of the peritoneum is called, within and below the pelvic brim, and an inch or so to the right and left of the fundus of the womb. An ovary is a somewhat elongated body, and shaped like an almond- or peach-pit. In size it is about half way between the two mentioned seeds. The organ is attached to the broad portion of the womb by a ligament, and the oviduct has a slender connection with it. Every month during the menstrual life of a woman an ovum matures in one or the other ovary. If the egg be not fructified it falls into the peritoneal cavity and decomposes, or is grasped by an excited Fallopian



tube and conveyed to the cavity of the uterus, where it is lost. If the ovum be fructified it is carried to the uterine cavity and there ensnared in the decidua of the organ, which becomes a medium of nourishment. If the impregnated ovum fall into the pelvic cavity, and there become vascularly fixed to the peritoneum, its development into a foetus constitutes extra-uterine or ectopic pregnancy.



This diagrammatic picture represents the Fallopian tube, the ovary (with the parovarium between them), the ovarian ligament, a part of the round ligament, one-half the uterus, and a part of the vagina.

At the age of about forty-five, a woman ceases to ovulate, or no longer menstruates. The vital energies cease to sustain the reproductive functions. The woman passing this *climacteric*, as it is called, may survive for thirty or forty years, and be well and even robust, yet her ovaries become atrophied and functionless.

The oviducts which transport ova from the ovaries to the cavity of the uterus are called *Fallopian tubes*, or salpingian canals. Their outer extremities are displayed in fimbriæ—*morsus diaboli*—which are presumed to grasp a matured ovum during a sexual emotion, and to conduct it along its passage-way to the horn of the uterus.

The mature ovum is very small—microscopically so—therefore not often seen or inspected. Under careful dissection with needles, and an investigation with lenses, the human egg may be demonstrated to possess an outer envelope, as if it were a single cell, a nucleus within, and still within that a nucleolus, each bearing the names of their discoverers. The entire affair



is not as large as a mustard seed, hence it may pass through the oviduct where the canal will barely pass a bristle.

The womb is pear-shaped, with the small or stem-end downward. It is flattened from before backward, especially above the cervix. The walls of the organs are thick and dense, almost creaking under a knife. The cavity of the uterus is normally two and a half inches deep, measuring from the os to the bottom of the fundus; and it is three-quarters of an inch from one horn to the other on the inside. The womb is outwardly about three inches long, and an inch and a half broad at its widest part. The cervix is about an inch in length, with a canal extending to a slight constriction that is called the *inner os*. Along the middle course of the cervix the canal is somewhat dilated, with ridges and furrows in arborescent display. The mucous lining is studded with muciperous follicles which secrete an abundance of tenacious mucus in endo-cervicitis. During the physiological hypertrophy of pregnancy the body of the womb expands or evolutes before the neck is involved in the process. At the end of utero-gestation the womb weighs two or three pounds, but after parturition it physiologically atrophies till it reaches its normal size, till it weighs an ounce or more. The *body* of the womb is so much heavier than the neck that it readily topples over, inclining forward when the rectum is distended, and backward when a full bladder pushes it in that direction. Besides, the uterus is subject to sharp flexions. During the menstrual flux the womb is congested and somewhat heavier than normal. The unimpregnated uterus bends a little forward—is appreciably anteflexed, especially in the cervix. The uterus is suspended in the middle of the pelvis by the suspensory ligaments which reach to the pelvic brim on each side, and by the sacro-uterine and utero-vesical ligaments. The peritoneum covers the top of the organ and extends laterally as the duplicature of the broad ligaments, covering the Fallopian tubes as they extend to the right and left. The ovaries are enveloped in the duplicature which constitutes the broad ligaments, and rest an inch or more below the superior border, and posteriorly to the reduplication. Their position is on each side of the rectum; and they incline into the Douglas *cul-de-sac*. The peritoneum reaches the vagina near the neck of the womb and constitutes the recto-vaginal fossa. The peritoneo-vaginal septum which is the floor of the *cul-de-sac* of Douglas, can be easily perforated to establish drainage of the abdominal cavity. The round ligaments of the uterus leave



the sides of the organs, extend laterally between the two layers of the broad ligaments to the brim of the pelvis, and then pass through the inguinal canals to the vulva. They are accredited with sustaining the womb against prolapsion, but the support must be feeble. The womb is a muscular organ, hence pathological hypertrophies of it are denominated *myomata*, but in its normal compact state a uterine throe is impossible. Two or three months of gestation develop contractile energy. At five or six months of utero-gestation the womb possesses power to free itself of inert or unwelcome contents.

The nerves which endow the womb with neural force come from the uterine and associate plexuses of the sympathetic system, hence they are not under the influence of the will. The energies which evolve ovulation and menstruation are utterly involuntary, as are parturient throes.

The womb derives its vascular supplies from the ovarian and uterine arteries, the main trunks anastomosing or coalescing along each side of the organ on its outer aspect. The ovarian arteries vascularize the upper end of the womb, and the uterine the cervix and body. The ovarian arteries spring from the aorta, and the uterine from the hypogastric or internal iliac. The zigzag course of the vessels along the lateral borders of the womb permits of extension when pregnancy takes the fundus of the organ high in the abdominal cavity. The course of the uterine arteries is along the pelvic brim, so that they are not impinged upon by the child's head in travail.

When the cavity of the abdomen is opened, and the intestinal folds are lifted to give a view of the pelvis through its brim, the cavity appears divided into an anterior and a posterior part by the uterus and its ligaments as a partition. Anteriorly is the bladder, and posteriorly are the rectum and the Douglas *cul-de-sac*. As heretofore stated the ovaries are behind the partition. The *bas fond* or upper end of the bladder is in intimate relation—in contact with the uterine cervix. Following an untoward parturition a utero-vesical fistula may exist, the peritoneum above escaping the laceration.

In a consideration of the passage way from the vulva through vagina, uterus and Fallopian tube, mucous membrane constitutes a lining for these organs, but within the fimbriae of the oviducts there is a blending with peritoneal or serous membrane. As a ripened ovum leaves its bed in serous tissue it is conveyed to mucous surface within the oviduct, and thus to the uterine cavity. This demonstrates that there is a communication in the



female from the genital to the peritoneal cavity. It is claimed that water injected into the cavity of the womb may find its way into the peritoneal cavity. The fimbriated extremity of the oviduct varies considerably, there being long and well marked fringes sometimes, and a trumpet like expansion, with short fimbriæ, in other individuals. Between the ovary and the oviduct is a rudimentary organ which bears the name of *parovarium*. It is a remnant of the Wolffian body that served a purpose in foetal life. It is a mass of tubules so delicate that it has to be held up to a good light to discover the collection. A morbid development of one or more of these ducts might become what is denominated a *parovarian cyst*, a disorder or malady which is distinct from cystic disease of the ovary.

The *endometrium*, or mucous lining of the uterus, is endowed with some special or unusual functions. It adheres closely to the uterine stroma, and is studded with dots, which are crypts, or the orifices of utricular glands. During menstruation and pregnancy these become greatly enlarged, and exude an organizable substance which has been denominated a *decidual* texture or tissue. When the impregnated uterus takes on physiological hypertrophy the mucous crypts or follicles expand into sinuses which receive the chorion tufts of the developing ovum. At a later period in embryonic development, when a true placenta is formed, the sinuses become large; and the maternal blood within them bathes the fringe-like masses as water does the gills of a fish. In other words, at the intimate juncture of the placental tufts with the uterine sinuses, membranous transudation occurs, nutriment being derived from maternal blood by osmotic action—by membranous circulation—oxygen passing as well as plastic material of a nutritious character. In the event of miscarriage the spot where the placenta was attached is not smooth and continuously firm, but furrowed and spongy. In the event of death as a sequence of the miscarriage, coagula will be seen in the uterine sinuses, shreds of decidua will be observed, and a discolored area be distinguishable. The walls of the uterus will be thicker than normal, especially above the cervix; and the measurements of the organs exceed those of the unimpregnated womb. The corpus luteum, as previously announced, will be larger than that which follows menstruation. However, pregnancy is not, as before stated, to be predicated upon the appearance of the corpus luteum unless the inference be sustained by strong corroborative testimony.



## SECTION II.

## DIAGNOSTICS, ANTISEPTICS, AND ANÆSTHESIA.

## GYNÆCOLOGICAL DIAGNOSTICS.

IN the diagnostication of female diseases, the genital organs are not alone to be considered, but the æsthetics, the caprices, and varying conceits of the female mind need scrutiny. The hysterical feature, which is ever present in a woman's nature, may not always be observable, yet exerts a hidden influence. It would be impolitic and offensive to even intimate that female patients with peculiar sensibilities are hysterical, though a charge of the kind might be logically sustained. A woman is not conscious of the scope of her being; she can not fully understand herself, though she may think that she does. She partakes of the supernatural from the dawn of her being. Her infant mind is impressed instinctively with the preservation of the race. Her opening eyes and expanding vision kindle into prophetic smiles at the sight of a doll; she is beholding the image of mankind,—the divine semblance. In this primal recognition of the human outline is a manifestation of the earliest phase of the female nature; and it is as unmistakable as the later development of her physical proportions. During childhood and juvenescence the feminine peculiarity is distinct and pronounced, but not as much so as when the blush of modesty mantles her face, and she is startled at her changing outline. Her eyes now reveal the indwelling of sentiment, emotion, love, and hope. Though delicate, and dependent to a solicitous degree, and sensitive beyond measure, she possesses a mental confidence and courage in disproportion to her physical strength and endurance.

At adolescence she is moved by a lively imagination, deep sympathies, piquant fancies, and changeable dispositions. She will even weep, and laugh, and sing, upon slight provocations and trivial incentives; and while gaily waltzing along the flowery mead, she fails to realize that the nuptial state is to be followed by maternity, which tests to the utmost a woman's physical capacities. At puberty she does not appreciate that the cli-



macteric means ovulation, which precedes reproduction. She all at once becomes conscious that she is moved by forces which up to this time have been latent; she appreciates for the first time that she is a woman, and in due time must pay the tribute the female owes to the continuance of mankind. The elegance of her stature and contour attracts the attention and admiration of suitors; and a consciousness of the fact imparts confidence to her aspiring and expanding qualities. At puberty her voice becomes melodious, and inclinations to sing are strong and impulsive. The joy of her heart bursts forth in song. Her tastes incline to personal adornment; she craves bright colors in dress and the brilliance of jewels to set off her charms; she places a high estimate upon beauty.

With the metamorphosis of form there is evolved a mental transformation. The tattle and prattle of girlhood give place to a love of romance; and this expands into religious sentiment or fervent piety. Her aspirations in a normal trend become exalted; she feels an inspired admiration for the good, the beautiful, and the true; she is at once tender, compassionate, and sympathetic; she would not harm a fly, but would warm to life the serpent which repays a kindness with a sting.

The onset of sexual sentiments makes woman the most lovely and lovable of beings. A suitor is adored beyond his deserts; too often her confidence is ruthlessly betrayed. A touching melancholy or charming bashfulness, which lends witchery to the young female, constitutes a striking feature in a combination of loveliness; and embraces a charm which is lessened as the possessor, in later years, becomes reflective or pensive. In time the frivolities of coquettish life are abandoned in a search for the possession of more substantial happiness.

To understand and appreciate the diseases of women, the gynæcologist must be familiar with the mental peculiarities just depicted, and consider whether the alleged disorder be not more fanciful than real. It is easy to make a mistake in diagnosing the diseases of females. Not infrequently a woman feigns an ill to accomplish a purpose she is not willing or ready to disclose. To penetrate the mysteries a female may throw about herself requires the arts of the adroit detective. If a woman pretend to be pregnant to carry out a sinister purpose, her tricks can not be exposed without the use of anæsthetics.

In a case of physometra, uterine hydatids, and ectopic conceptions, the most discriminating physicians may be balked in attempts to effect a pathological differentiation. A polypus



projecting from the uterine os may closely resemble inversion of the womb. A woman in a hysterical state may retain her urine until the bladder loses its expulsive and evacuating power. A woman may bruise or lacerate the genitalia to substantiate the charge of having sustained personal violence; and even go so far with the fraud as to inflict upon herself serious injuries, choking her neck, and strangulating her wrists. Malingerers, to reap the benefits of eleemosynary institutions, concoct the most cunning devices to excite sympathy and elicit charity. An artful designer has been known to force pebbles into the bladder that the viscus be the object of a surgical exploration. An hysterical woman has been guilty of pushing needles under the skin, and keeping the trick concealed till it pleased her purpose to disclose the foreign bodies and have them surgically removed. These wily deceivers may allege that they had a row of needles in the mouth when in a spasm the implements were swallowed. To detect all the cheats a crafty hysteric may devise, would require the scrutiny of the elect. A morbid desire to be a topic is at the bottom of kindred trickery. I was once called professionally to a lady who alleged that she had been stabbed by an assassin while she was resting on a sofa in her parlor. A few inches below the axilla the waist of a silk dress was cut, also the corset and chemise. I examined the incised clothing with care, and became satisfied that she had made the incisions with scissors, inasmuch as the skin had been nipped with scissor-points in several places to secure the startling evidence of blood, and to intensify the horror of the deed as well as the enormity of the crime. The newspaper notoriety she gained in the case seemed to give her great satisfaction. In the committal of a different trick, yet with the same morbid scheme in view, she was detected; and then she confessed having been her own assassin in the previous sensational drama.

It is not the strangest occurrence in the world for a woman to claim to be the mother of a supposititious child. Mrs. Cunningham attempted to impose upon the estate of Dr. Burdell in this way; and court records contain the disgusting details of several such allegations. Sometimes a woman will adopt a child, claiming it as her own, that she may blackmail a man on the ground of alleged paternity. I was one of two physicians appointed by the court to examine a married woman for the purpose of ascertaining whether she had lately borne a child or not, it being alleged that she had deceived her husband in regard to the parentage of the infant.



In the examination of the female genitalia for disorders and defects, the gynæcologist proceeds with deliberation, leaving as little as possible to conjecture. After the vulva, the vagina and uterus have been examined and explored, the bladder and the rectum may be manipulated and inspected. A polypus of the urethra, or vesical vegetations, may be the cause of any amount of pelvic trouble. To neglect such contingencies would be an unpardonable blunder, especially if the diagnostician claim to be a gynæcologist. Then, again, the womb and the bladder may be accused of ailments when the trouble is with the anus or rectum. An anal fissure has caused untold malpractice on the part of physicians who never expand diagnostic investigation beyond the vagina and os tincæ. At present it is expected that the practitioner of medicine and surgery shall take advantage of every opportunity at command, and utilize every exploratory means thus far devised to diagnosticate female diseases. By the bimanual or conjoined manipulation the operator palpates every abdominal and pelvic organ, and by the method of exclusion, rigidly carried out, ascertains with marvelous accuracy the relative size and position of each viscus. By the aid of sounds the cavities of several of the pelvic viscera may be explored, and with proper specula they may be viewed. Dilators may be employed to facilitate deep inspections, and volsella be made to drag the uterus within sight and reach. Such diagnostic improvements have been made within the last few years, that diseased states of the pelvic organs may no longer go unrecognized.

In a thorough examination of a woman for the purpose of learning the nature and extent of her diseases, she should be placed on a gynæcological table, and handled with the object of ascertaining her ills. Possibly the dorsal decubitus is the best position for determining a given point; and it is not improbable that the patient should rest upon her side in a flexed attitude, the knees touching the chin. The operator, standing behind his patient, and employing the finger of the right hand as a vaginal explorer, and his left hand to indent the hypogastrium, can explore deeper and more satisfactorily than with the patient resting upon her back.

Occasionally it may be found necessary that the patient rest upon her knees and elbows, in order to throw the pelvic viscera forward in an examination of the rectum and recto-vaginal septum. The position is one which carries advantages with it, and should not be neglected nor forgotten.



In thus summarizing gynæcological diagnostics, I would not convey the false impression that I have exhausted the subject, or that there are no morbid states which can baffle those claiming extended experiences. In cases of extra-uterine pregnancy, and in the event of a floating kidney, the skill of an expert may be confused and confounded.

#### ASEPSIS AND ANTISEPTICS.

Asepsis in surgery signifies about the same as cleanliness; and by antiseptics is meant the use of such agents and methods as have been employed to sweeten septic matter, to arrest fermentation, to destroy putrescence, to devitalize microbes, and to obviate zymosis, or septic states of the body. The minute organisms which are present in septic conditions, are known to be devitalized by boiling, and by the use of various germicides, among which are carbolic acid, corrosive sublimate, cyanides, iodoform, eucalyptus, and other more or less poisonous substances. Freezing will benumb bacteria, and other microbes presumed to exert a damaging influence, but does not destroy their vitality; they can be warmed into active life again, and may prove as harmful as ever.

A few years ago, Mr. Joseph Lister invented a method of excluding bacterial bodies from traumatic surfaces; and his followers now say that they execute surgical operations "with Listerian precautions," meaning, I presume, that they attempt to exclude septic germs from wounds. The original scheme is now abandoned by its author, yet an improved plan is launched upon the surgical world.

It is not fully decided whether microbes are the cause of zymosis—*propter hoc*—or the sequence—*post hoc*. The evidence is mixed in character. In some instances the testimony is that the introduction of bacilli excites suppuration and zymotic symptoms; and that microbic exclusion is not attended with purulency and septic fever. While I am not a champion of Listerism and Listerian precautions, whatever they may be, I can not avoid admitting that "ferments," of one kind or another, corrupt animal fluids, which get pocketed in traumatic structures. The operation of yeast cells in dough is illustrative of the idea. I have dressed a lacerated finger with rubber adhesive plaster, and wrapped the wound so securely from outside influences—protected it so completely from air and dirt—that no suppuration attended the healing process; and not much



soreness accompanied the reparative activity. On the other hand, I have seen dangerous sepsis follow the dressing of a wound on the Listerian plan. Pus we know will form where no air exists—where it does not seem possible for a microbe to gain admission.

The use of iodoform in the dressing of surgical wounds is attended with a restricted amount of suppuration, so that if the agent be not aseptic, it is anti-suppurative. While the agent has been accused of creating systemic disturbance in occasional instances, I have employed it somewhat extensively, and without observing serious effects. While I would not admit the drug to the abdominal cavity, I think it hostile to sepsis in wounds of the abdominal walls. In closing the belly after laparotomy, iodoform should be sifted freely upon the seam after the uniting sutures have been applied. In the closure of a ruptured perinæum, iodoform in moderate quantities should be used upon the raw surfaces of the sutured seam; and as much may be said in regard to the treatment of the traumatism of vesico-vaginal fistula. The freer a wound may be of purulency the quicker it heals. "Union by first intention" is union without suppuration.

Carbolic acid has an odor almost as offensive as iodoform; and is rather irritating to raw surfaces, as well as a systemic poison, its action upon the kidneys being particularly damaging. The agent has been extensively employed as an antiseptic, but is gradually going out of use.

Corrosive sublimate is one of the most potent of germicides, and is extensively employed as an antiseptic. A weak solution of the salt has been commended to render the operator's hands and surgical instruments *aseptic* in laparotomy. While I am ready to acknowledge its antiseptic properties, I do not like its effects upon steel implements, and inferentially upon organic structures. If it corrode steel, it must irritate delicate peritoneal surfaces. A less disturbing agent is to be recommended, except in restricted traumatic areas near the surface.

A solution of asepsin is an agreeable protective against microbial invasion. It will not, at ordinary strengths, kill saprophytes and sweeten putrescent pools, yet it is a potent and inoffensive antiseptic.

A mistaken notion prevails in regard to the uses and potencies of antiseptic agencies. A piece of meat that is tainted can not be made fresh and sweet again. The offensive odor may be destroyed, but freshness can not be restored. The surgeon who



would have a wound free from putrescent smells must keep it so from the start. He is to make the wound clean, and keep it thus. The wholesome state can be secured and maintained by dressings which exclude the air, by preventing the accumulation of putrescent material in pockets, and by efficient *drainage*. Inasmuch as air can not always be excluded from traumatic structures which are deep and extended, it is safest and surest to establish and maintain drainage. In laparotomy of the female, drainage tubes are kept in the abdominal wound for a few days, or the peritoneo-vaginal septum is perforated to secure pelvic drainage, the fluids gravitating to the Douglas *cul-de-sac*. I devised a pewter drainage tube to drain into the vagina. A bulb on the inner end makes it self-retaining. I devised also a long and elastic rubber tube to reach from outside the abdominal wound through the belly to the Douglas *cul-de-sac*, and out through the vagina. It is perforated with holes along its course, and secures efficient drainage.

Sponges thoroughly cleaned, and rendered aseptic with dilute muriatic acid, may be employed in wounds, and even inside the abdomen, in the peritoneal cavity, if they be prepared with scrupulous care, and kept absolutely clean; but a septic sponge is an abomination. I use the implement less than formerly. I avoid using sponges when a piece of clean linen will take its place. The prospect of having artificial sponges is in the not distant future. The artificial wiper can be kept free from dirt and lint, but a sponge can not be made clean and kept thus. When sponges are employed as vaginal tampons they become putrid in a few hours. The most successful laparotomists of the present day wash out the peritoneal cavity with pure water, or use a pinch or two of common salt in the douches. In fact free irrigation with tepid water is the best preventive of septicæmia. The flowing water floats out minute coagula and washes the handled surfaces. Asepsis is merely surgical cleanliness.

In the practice of midwifery the accoucheur should be scrupulously careful about carrying infection, that of cellulitis, metritis, peritonitis and erysipelas, from one lying-in room to another. If an obstetrician suspect he has sepsis about his person, he should decline to make obstetric engagements; and if a case of puerperal peritonitis occur in his practice he should fumigate himself thoroughly, sparing no pains in the process. With daily efforts of the kind he should be clear of the poison in three or four days. The fumes of burning sulphur are quite



destructive of septic *germs*. Scrubbing the hands and face, and combing the hair and beard, with the free use of perfumes, constitute the best means of expurgation. Scouring the nails with a brush, and clearing out the sulci with a nail-knife, are in the line of purification.

The woman about to undergo parturition should be made scrupulously clean, for the womb recently relieved of a child is in a state of traumatism. Where the placenta rested the spot is exceedingly susceptible of contagion. Besides, a parturient woman is liable to more or less abrasions of the genitalia. In the delivery of the placenta the accoucheur may have to send his hand inside the womb to dislodge the secundines, therefore the unguent employed should not be rancid fat, but an antiseptic oil or a specimen of vaseline.

The gynæcologist carries in his reticule, and keeps in his office, a vial of sweet oil which is scented with neroli or other agreeable perfume. In visiting patients at their homes it is a saving of time to have an unguent at hand.

The best time to clean instruments is when they have just been used; but they should always be wiped before they are again employed. The renewed wiping makes cleanliness doubly sure. Scissors and forceps are to be cleaned at the joints, and knives at the junctions of the blades with the handles. Sounds, probes, and directors should be carefully wiped before being put away. Instruments employed to remove an imprisoned placenta should be not only washed, but smoked. I generally send the blades of obstetric forceps through a blaze before inserting them. In the summer, when no fires are at command I burn a newspaper in a grate or on a hearth to scorch and fumigate obstetrical and gynæcological instruments. The practice of stuffing the vagina with antiseptic cotton is not to be commended. In the event putrefactive odors issue from the genitalia the vagina is to be douched with the contents of a syringe, the wash being as hot as can be borne, and impressed with asepsin. The douches may be repeated every two or three hours till no offensive odor can be detected.

A putrescent scent is a positive sign of the presence of septic matter. As soon as a coagulum, slough, or retained placental mass is discharged, the offensive odor ceases. As a rule, fluids should not be thrown inside the uterine cavity, but in exceptional cases, as in sub-involution, the inside of the womb may be douched with quite warm water. Medicated washes should be avoided.



It is a question whether medicines sent through the stomach exert upon the body an antiseptic influence. Baptisia has a reputation for exerting a systemic influence that proves aseptic; and so do sulphurous and muriatic acids, but the action, if appreciable, is very feeble. The same may be said of quinine and other bitter medicaments. The "acid solution of iron" is such a remedy, but its preservative influence is indirect. It imparts digestive power, and fortifies the tissues against the encroachments of the septic influence. The effect of acceptable nutrients is antiseptic to an appreciable extent.

When the atmosphere of a sick room becomes heavy with effluvia, the apartment should be ventilated, and even fumigated. A patient sick with blood-poisoning can not get well in an atmosphere laden with poisonous emanations. The burning of pastiles in a sick room is to be commended, though there may be too much of a good thing. When the weather is warm a fire in a grate enforces a change of air. I have not much faith in the disinfecting powers of chloride of lime and Condy's solution, yet these instrumentalities need not be condemned.

Deodorizers are not necessarily disinfectants. Too often one unpleasant scent is outstunk by another, and neither proves purifying. The pungent odors of essential oils drive microbes from an apartment, as the strong scent of camphor and cedar dissipates moths. Zymotic diseases are not common in groves of cedar and kindred evergreens. The terebinthinate odor is wholesome. The odor of Eucalyptus proves to be protective against microbes—the phytes and zymes of traumatic surfaces—hence it may be used profitably in surgical dressing. The fungi of skin diseases can be destroyed with a germicide or parasiticide which penetrates to the depth the parasites bore or burrow. Salicylic acid and chloride of zinc will kill the fungi of epithelioma, eczema, and some other cutaneous disorders. But these agencies do not rank as antiseptics,—they are parasiticides.

Microbes destroy each other, or one kind extinguishes another, so that the world is not overwhelmed with them. Through "cultures," or the cultivation of various species of bacteria and bacilli, it is learned that one class of microbes may prove destructive to another. The life-lease of spores and germs is brief, some living only a few hours. Many varieties are wholesome, helping to transform harmful putrescence into material that is not unwholesome. Quite a number of species, acting as ferments, assist in digestion. We should not destroy all kinds of microbes if we could; and we could not if we would. They



inherited the earth before men put in an appearance; and we manage to live and thrive in spite of all the harm they can inflict upon us. The length of human life, on the average, is increasing, and was so eventuating before microbes were discovered; and it is a question whether the killing of a few million of infinitesimally small organisms which multiply rapidly, will appreciably lessen the multitude, and make domestic animals and man more secure in their daily life. In a struggle for existence it may do us good to fight their microbial majesties.

#### ANÆSTHETICS.

Since the published statement of Dr. Hunter McGuire, that he had witnessed twenty-eight thousand administrations of chloroform in the army of Northern Virginia, and without a death that could be ascribed to the effects of the lethal agent, an interest has been awakened in regard to the comparative danger incurred in the use of the several well known anæsthetics. Dr. McGuire was Surgeon-in-chief to the Confederate army, with head-quarters at Richmond, Va., and enjoyed the best opportunities to make observations in every department of military surgery. At first the assertion of McGuire was treated with "smiles of ridicule" on the part of chroniclers at home and abroad. But the character of the distinguished surgeon could not be impeached "for truth and veracity," and his extraordinary assertion became incidentally supported by statistics gathered from hospitals about Washington, and barracks where thousands of wounded in the Federal army had been treated. The record of thirty thousand chloroformizations without a death from the direct effects of anæsthesia, confirmed the startling statement of the Confederate surgeon; and threw the *onus probandi* upon those who oppose the use of chloroform as an anæsthetic, on the ground that the agent is more dangerous than ether or the so-called A. C. E. mixture, from the restricted clientele of civil practice.

Then, as if to make assurance doubly sure, came the statement from India that Surgeon-Major Lawrie "had had 50,000 chloroformizations done under his charge without the loss of a single life." This startling announcement led his highness, the Nizam of Hyderabad, to offer \$5000 to defray the expenses of a Commission to test the merits of the different anæsthetics, and Dr. Lauder Brunton represented the *Lancet* in the conduct of experiments before the scientific syndicate; and the results



were most convincing. Hundreds of dogs were anæsthetized with different lethal agents, and varying methods were employed; yet none could be counted as against chloroform, unless it be inferentially, the drug being the more potent, should be administered with more care. The respiration should be watched, and the thorax slapped upon approaching asphyxia or suspended animation. To feel of the pulse does no good—gives no warning of danger, for the heart beats several seconds, if not minutes, after respiration has ceased. The anæsthetist and the surgeon are to watch the respiration, and to be governed by that alone. If breathing cease or become temporarily suspended, artificial respiration is to be introduced at once; and the ready method is to slap the thorax with heavy blows from the open hand, the patient being quickly turned upon the front with the head hanging low to allow the tongue to fall forward. As soon as respiration returns there is danger no longer, and the operator may proceed with manipulation, and the anæsthetist continues, at brief intervals, to present the lethal vapor to the mouth and nose of the patient. There is no necessity for a return of consciousness before proceeding. As soon as the third stage is reached—that of stertorous breathing—the chloroform is for the time removed,—but to be returned again as soon as a disposition to struggle recurs.

The use of electricity to restore asphyxiated dogs was utterly without recuperating power, all experiments of the kind resulting in death. Artificial respiration alone resuscitated the breathless; and sometimes after several minutes of suspended animation.

I am happy to say that the conclusions of the commission are all in accord with what I have thought for years. Even the handkerchief in place of a complex inhaler was commended.

An objection to the action of chloroform has been that the agent nauseates more than sulphuric ether and other anæsthetics, but the charge has not been sustained. All anæsthetic agents produce more or less nausea, but the vomiting excited by chloroform evacuates the stomach rapidly, and lets the organ have a rest; while ether and the A. C. E. mixture keep up a prolonged nausea, that is quite disturbing and time-consuming.

The smell of chloroform is rather pleasant, while that of ether is repulsive. The odor of the A. C. E. mixture is more acceptable than that of ether, but not as sweet as that of chloroform. Besides, ether is not potent enough to produce somnolence and unconsciousness in some patients. The A. C. E. mix-



ture combines three vapors of unequal densities, hence there is not a perfect admixture in due proportions. The combination is not equable, with one part by weight of alcohol, two of chloroform, and three of ether, but the more volatile vaporizes first, and the heavier last. It is like mixing rum, gin and brandy together to constitute a complex tippie. All brandy would be more efficient and palatable.

In several instances I have seen ether fail to subdue a patient, and chloroform had to be substituted for the less potent agent. In one case a woman who was to undergo excision of the mammary gland, made me promise to give her ether. I did as requested, but she could not be made insensible by a free use of the agent. At length she called for chloroform; and in two minutes she was in a snoring state of sleep.

The handkerchief or napkin to be saturated with chloroform should be scrupulously clean, and large enough to fold into several layers, and then have a spread as wide as the open hand. The middle of the pack is to be indented, and the centre wetted with a drachm of chloroform. This should then be held to the mouth and nose, yet not so near as to exclude fresh air. After a few breaths of the vapor are inhaled, the absorbent should be held nearer the face, yet not touch the skin. Every two minutes a few drops of chloroform—a half drachm or so—are to be poured upon the handkerchief, to keep the vapor fresh and strong; and after six or eight minutes have been consumed the lethal agent is to be pressed upon the patient.

There is no necessity for a patient to take a glass of whisky as preliminary to chloroformization, yet there can be no harm in the precaution. A feeble subject might take a tablespoonful of whisky to advantage. The average patient will do as well without the alcoholic stimulant.

Chloroform may be given to patients having heart diseases without fear. The agent stimulates the circulatory functions, and steadies an irregular pulse. It makes the cardiac stroke stronger at first, and never kills by depressing the action of the heart. Those who die from the effects of chloroform are victims of asphyxia—the lungs cease to act; death is not from heart failure.

A profound state of anæsthesia is not needed in a woman who is to undergo an ordinary surgical operation, or instrumental delivery. The second stage—that of partial insensibility—is enough. It is rare for two ounces of chloroform to be consumed in a difficult labor, or in the closure of a vesico-vaginal fistula.



## SECTION III.

## GYNÆCOLOGICAL APPARATUS.

Instruments and implements of a gynæcological character have multiplied from time to time till an outfit is somewhat formidable in size and expense; and the rate of increase through modifications, improvements, and inventions, is quite bewildering. All changes are not improvements, for mere fancy is at the bottom of many innovations.

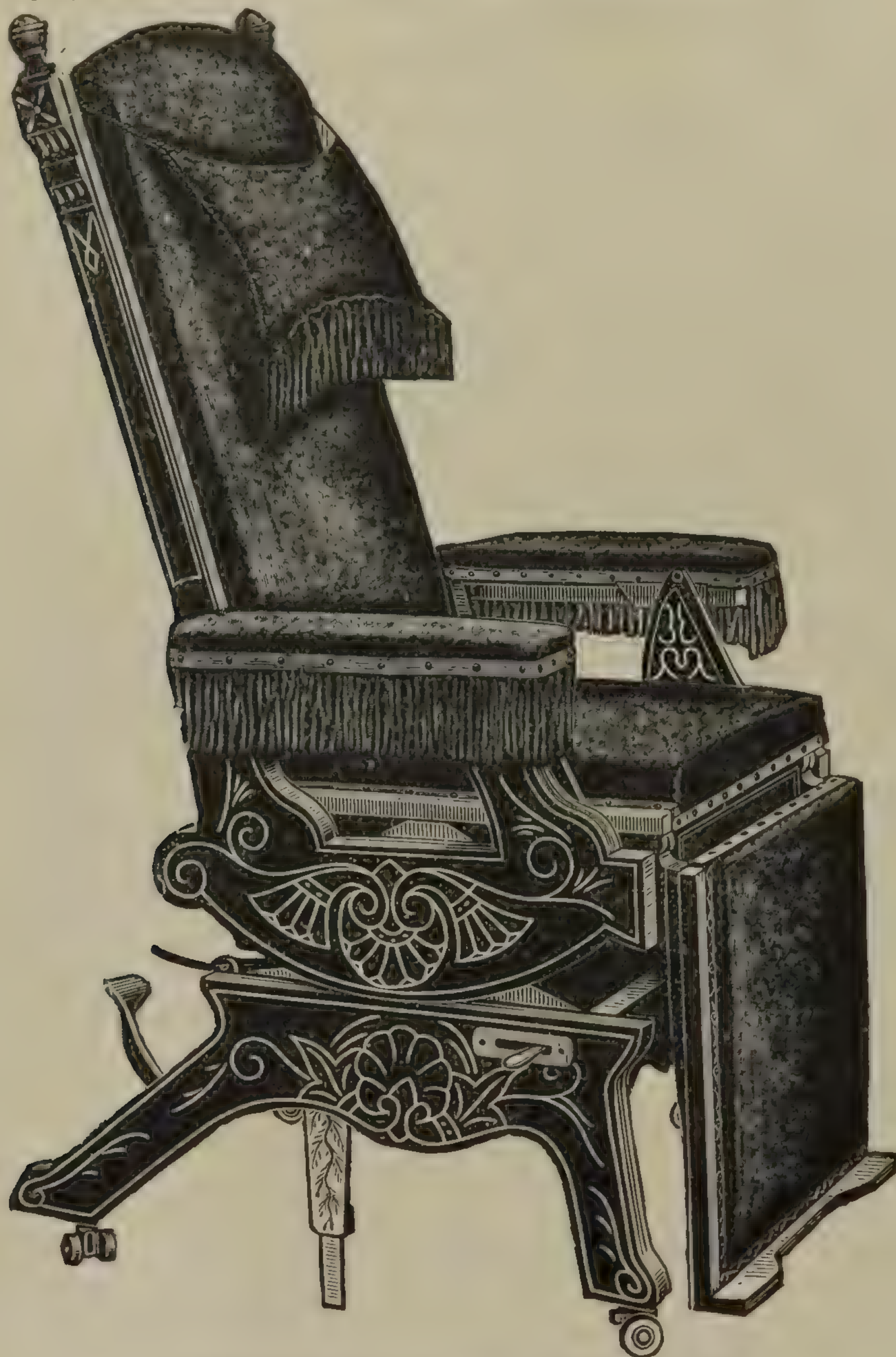
At first a tubular speculum and a *porte caustique* constituted a liberal supply of special instruments to investigate and manage the diseases of women. The vaginal speculum was of medium proportions, to conform to as many variations as possible; and a large proportion of patients were treated for ulceration of the *os tinæ*, and with escharotics, hence the need of the implements mentioned.

Once the physician's office had no table or chair, on which a patient could be posed in various attitudes for explorations and treatment; while at present there is so much apparatus of the kind that it is difficult to choose understandingly from the many "patent chairs" presented to the attention of the medical profession. A gynæcological chair manufactured by Miner & Elberg, of Indianapolis, Ind., combines more desirable qualities than any I have thus far examined. The accompanying diagram represents the closed chair, and smaller cuts of the same thing, which follow, give a display of postures the chair, through simple mechanical contrivances, can be made to assume by the hand or foot of the operator. The mechanics of the tilting and jointed table are proximately perfect; hence the makers name it the "Perfection Chair." I would suggest that the less tassels and superfluous upholstery there be about the machine the better.

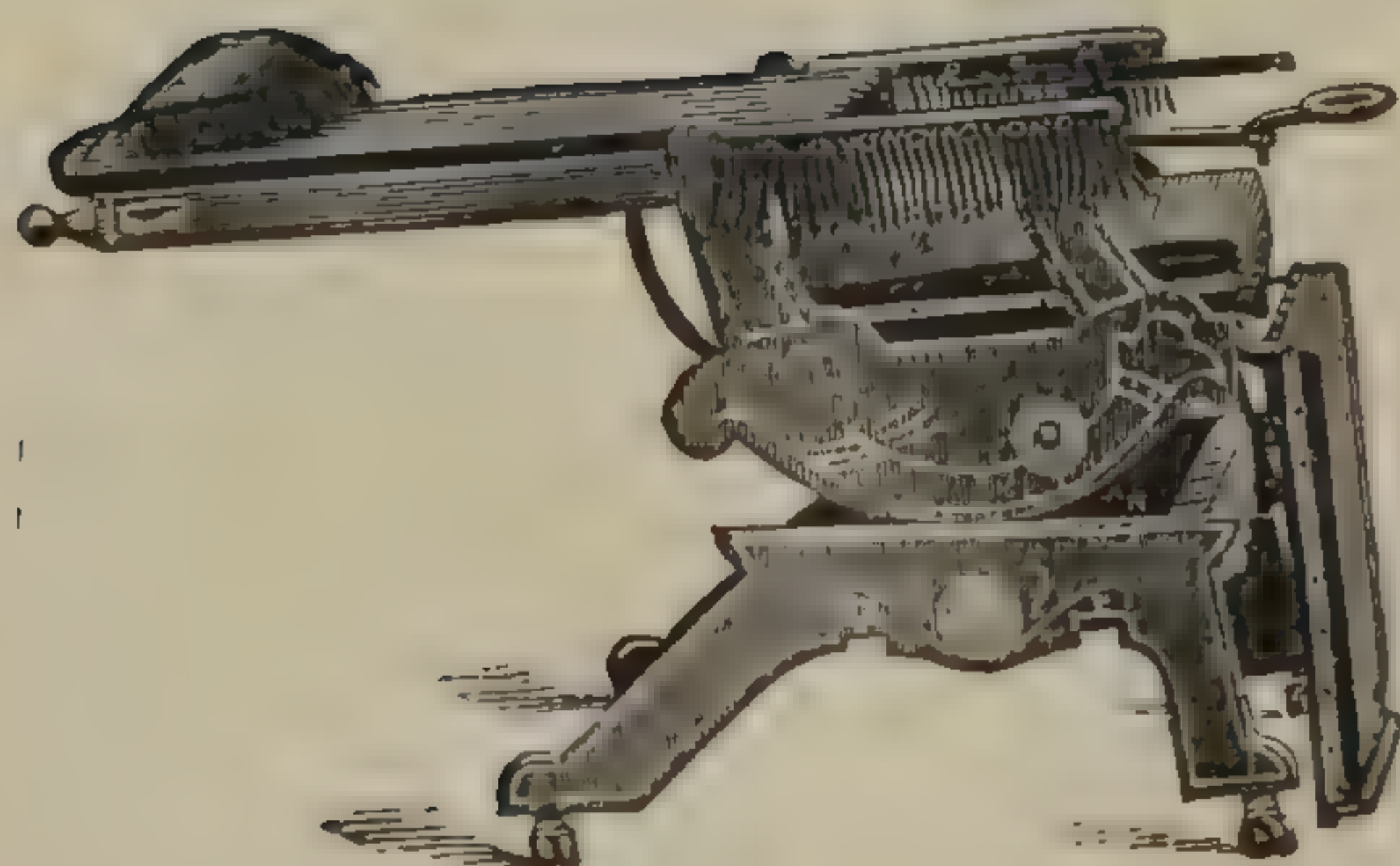
In the vicinity of the operating table there should be an ample supply of water, basins, towels, napkins, cotton-wool, packages of old linen, absorbent lint, antiseptics, etc. A cabinet with drawers and boxes is quite necessary to contain gynæcological instruments and implements which may be needed in



conducting an examination or operation. An electric or incandescent arc light is desirable, but when impracticable a gas light will do, or lamp with reflectors. In the evening and on dark days, a good artificial light is indispensable



GYNÆCOLOGICAL CHAIR—"PERFECTION."

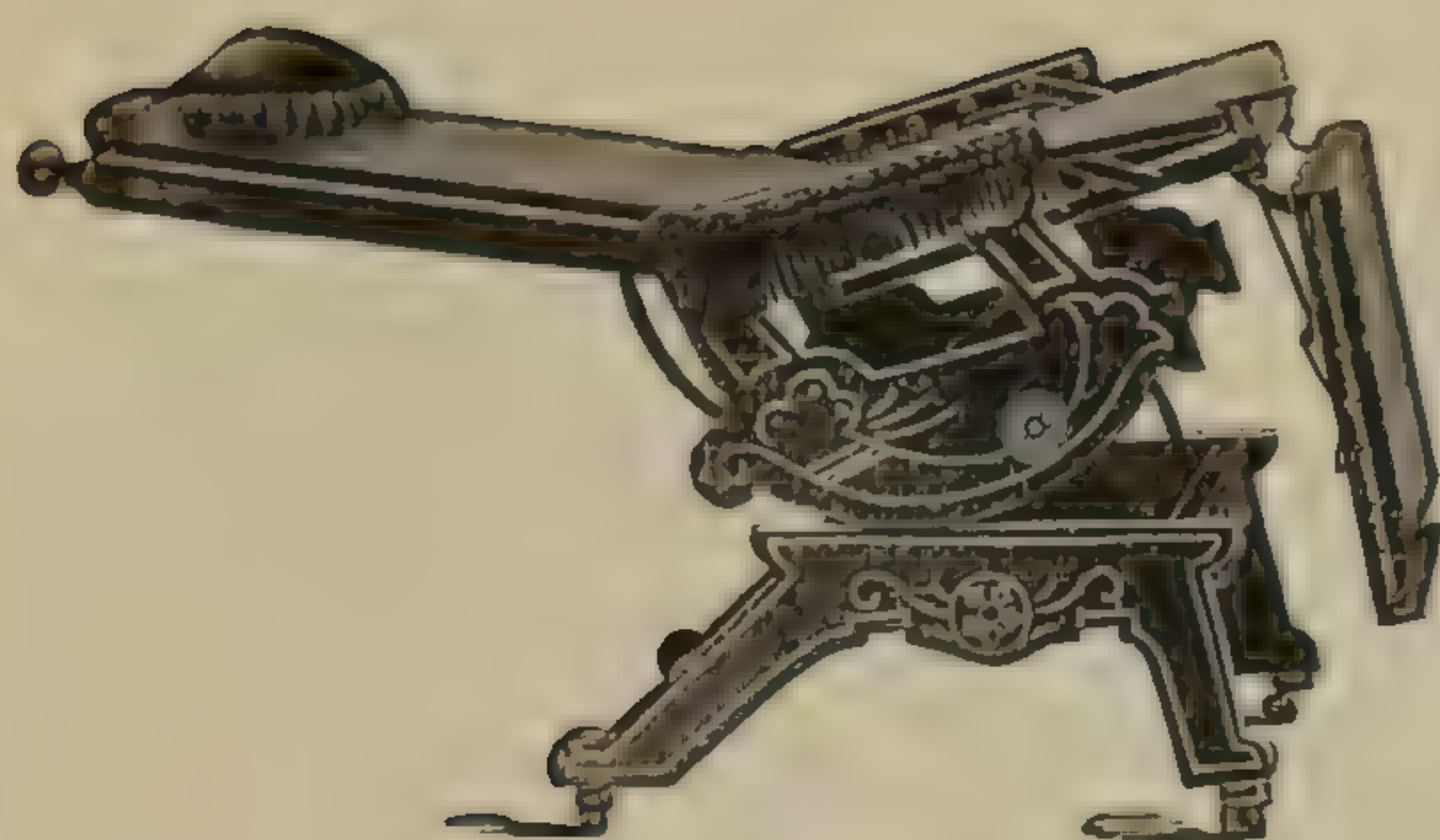


Dorsal position.



Table position.



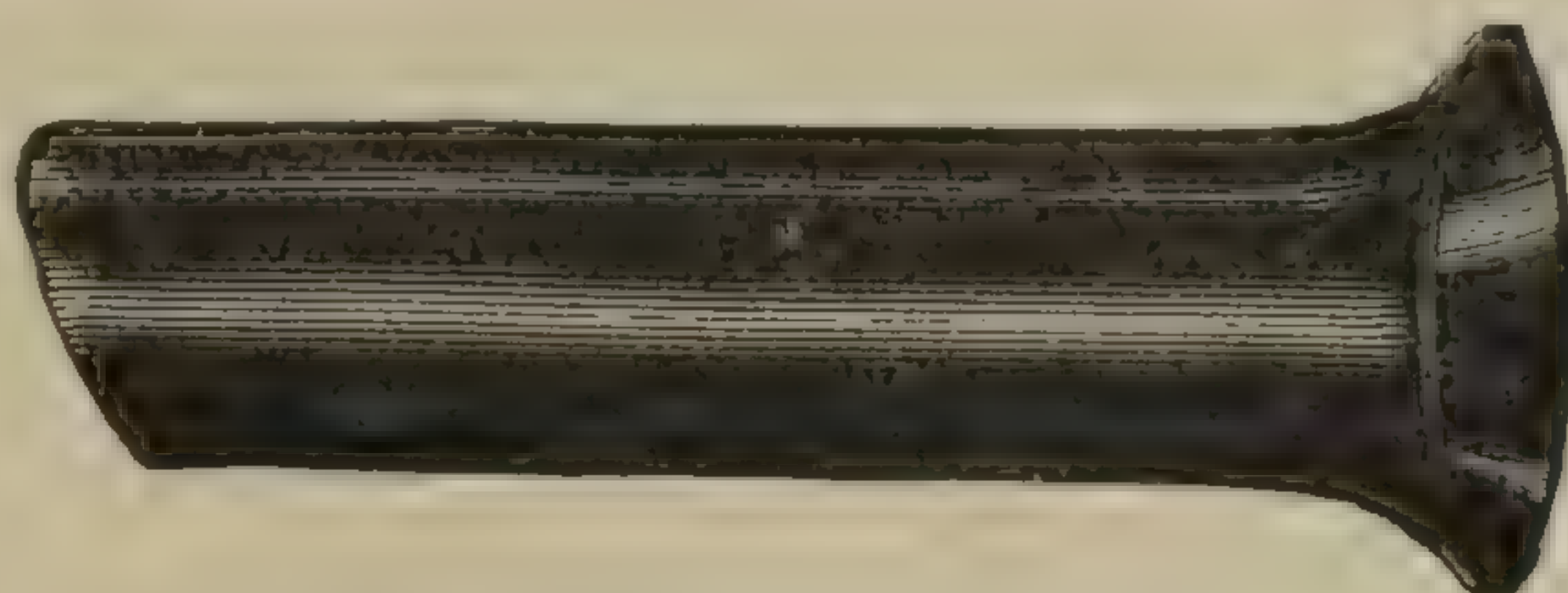


Elevating the hips.

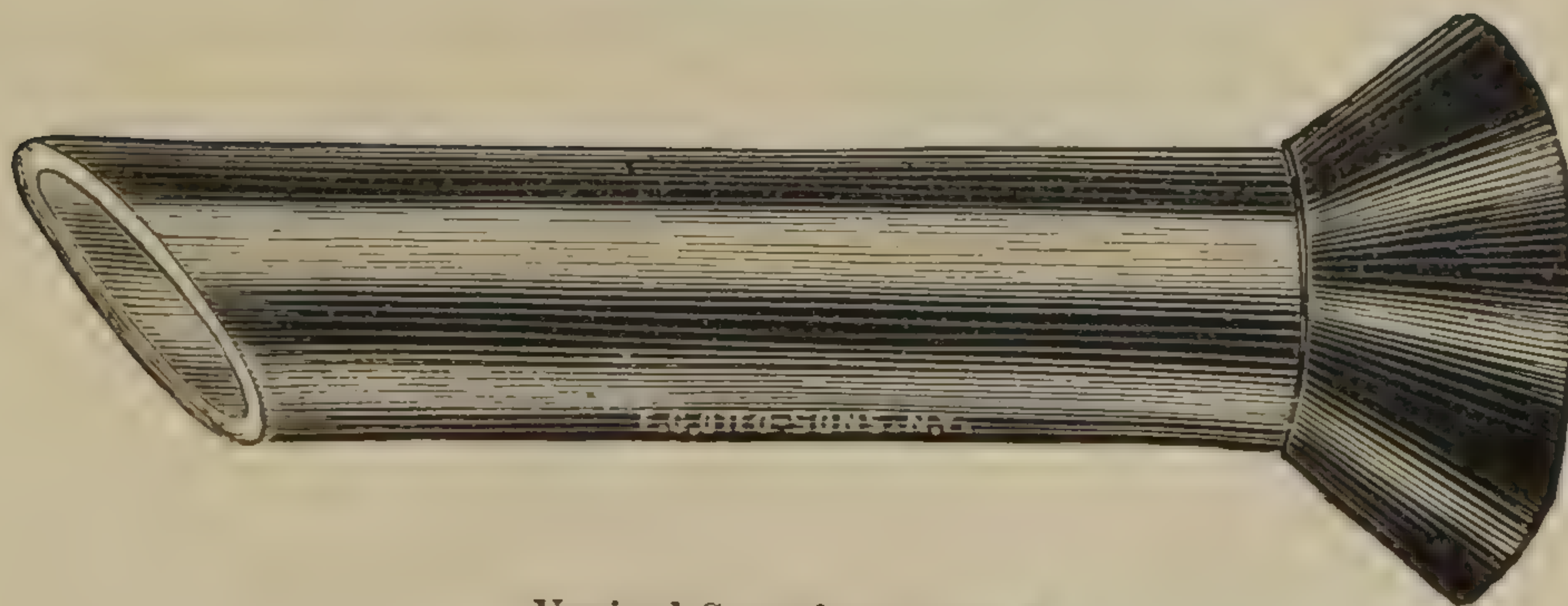


Resting position.

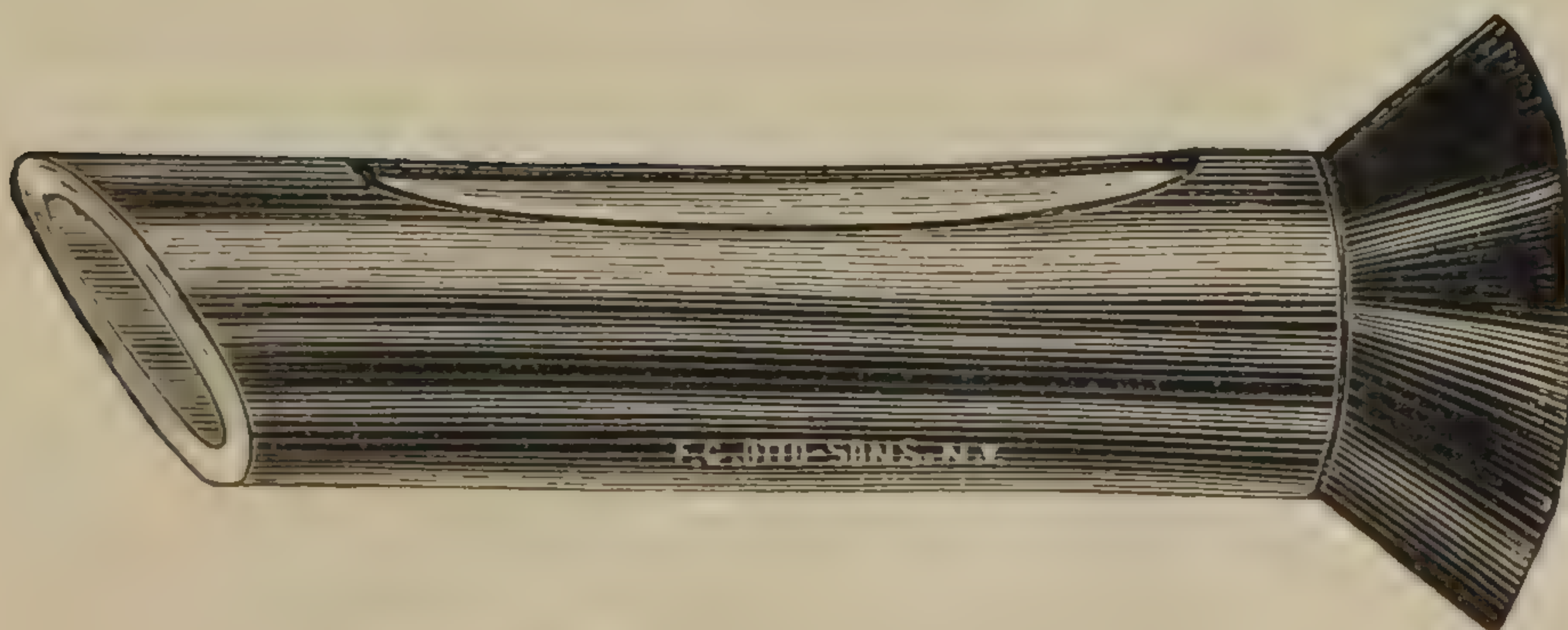
Glass or hard rubber vaginal specula should be at hand, and in considerable variety. There should be a large one, a medium sized tube, and a small one; also a long and a short speculum for varying anatomical conditions. A short tube of large caliber, like the one represented in diagram No. 4, is useful to pack the vagina with cotton flannel wads, to relieve falling of the womb. A patient having this instrument can treat herself. A long speculum would be useless for the purpose named.



Vaginal Speculum.—No. 1.

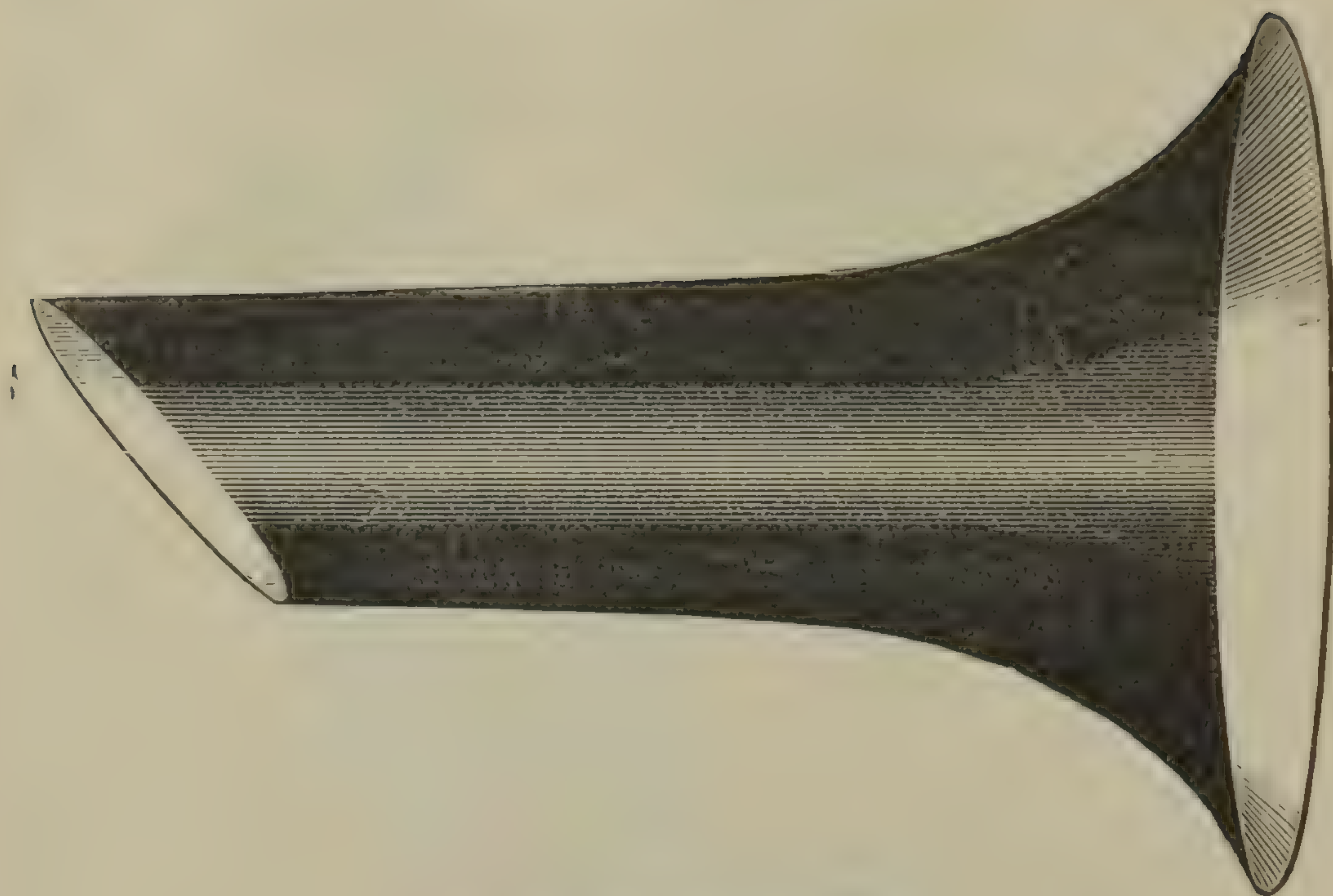


Vaginal Speculum.—No. 2.



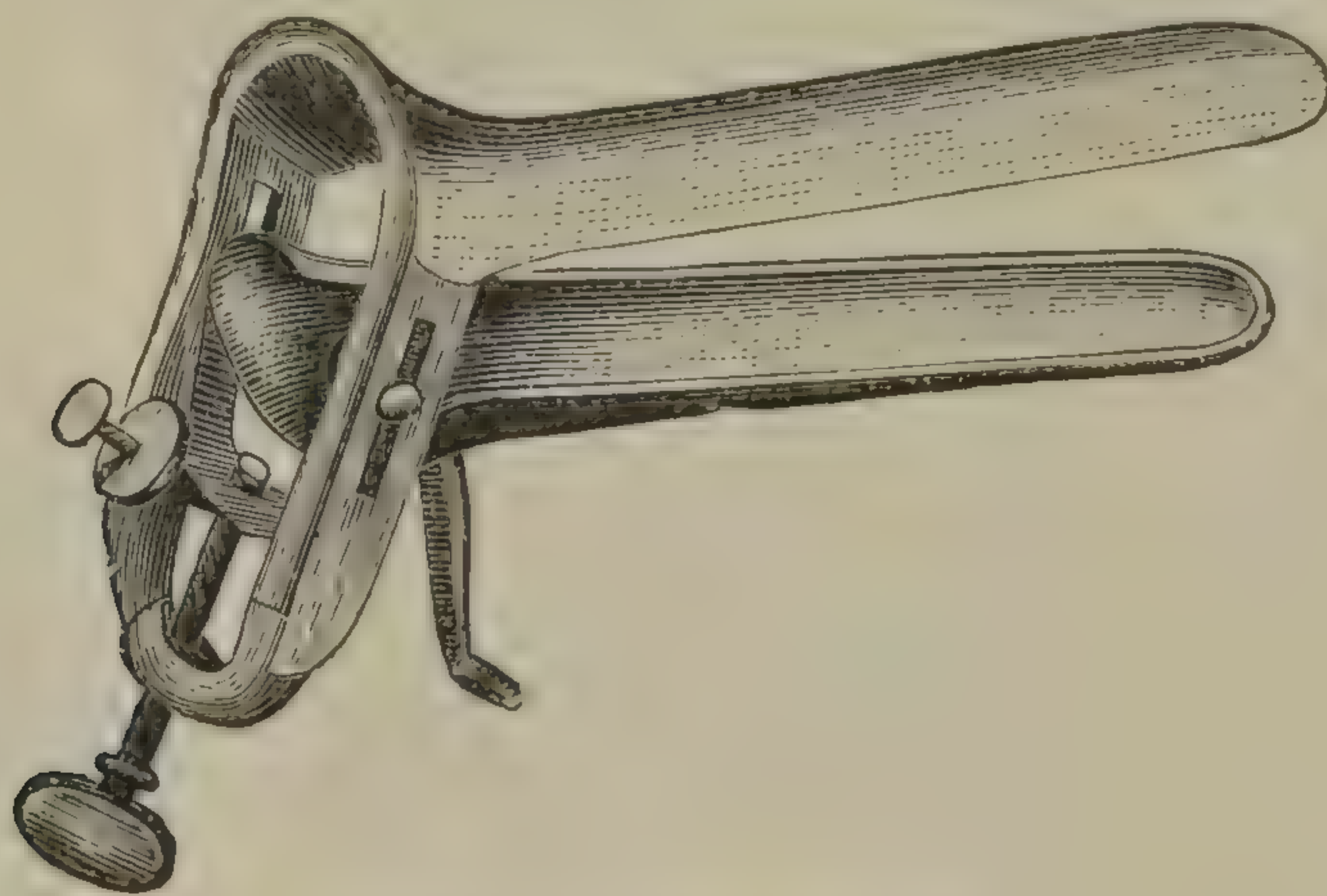
Vaginal Speculum fenestrated.—No. 3.





Short and large Speculum.—No. 4.

Besides a full assortment of tubular specula, there should be at hand a Sims' duck-bill speculum—uni-valve—and a variety of bivalves and trivalves. These are metallic, and varied to



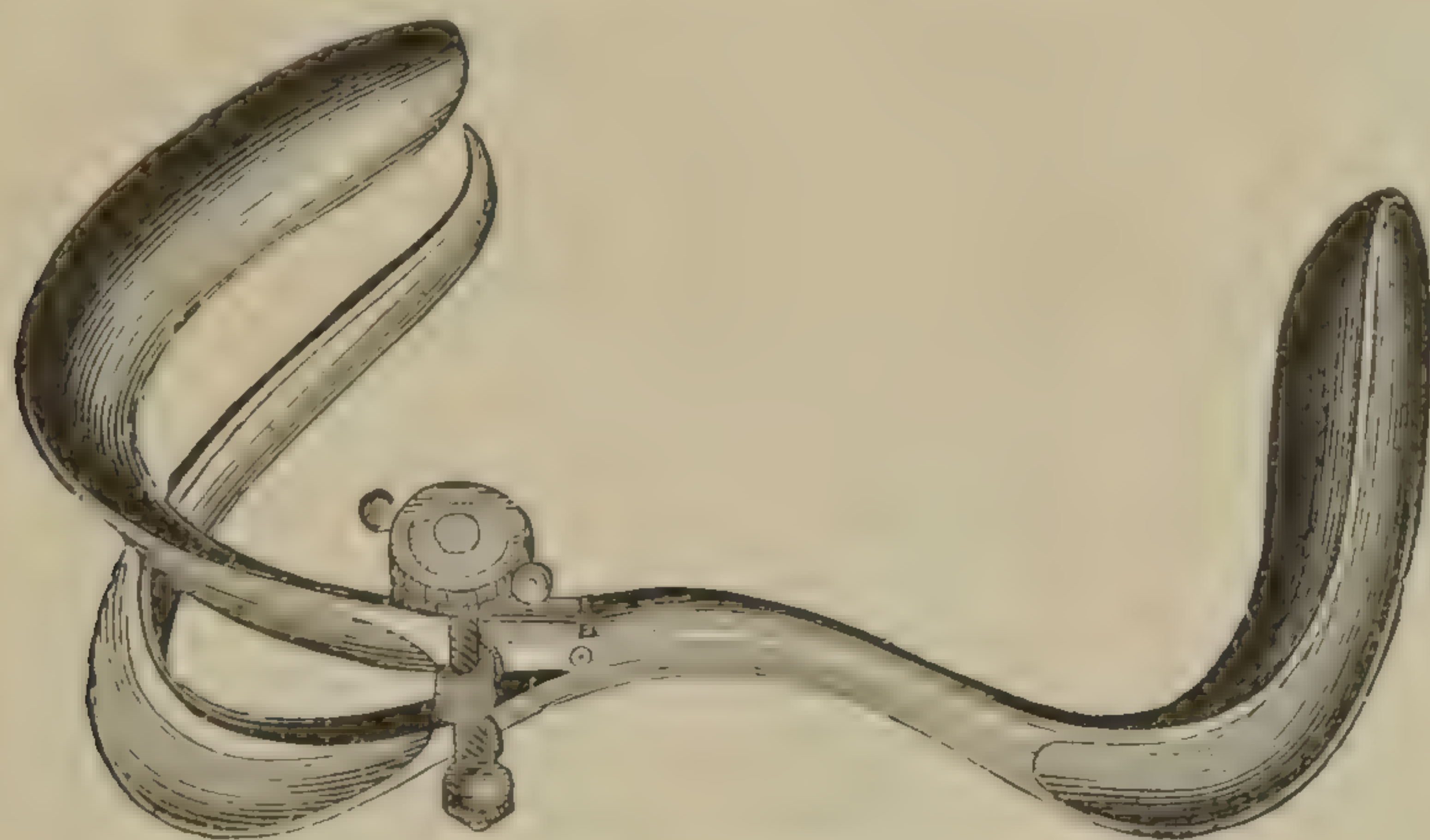
Jackson's bi-valve Speculum.

suit the fancies of operators. Some of them, in their mechanical combinations and movements, are marvels of ingenuity. However, the tubular speculum and the duck-bill are oftenest used. The latter is employed by the physician to introduce fibrous pessaries into the vagina, to support a falling uterus.

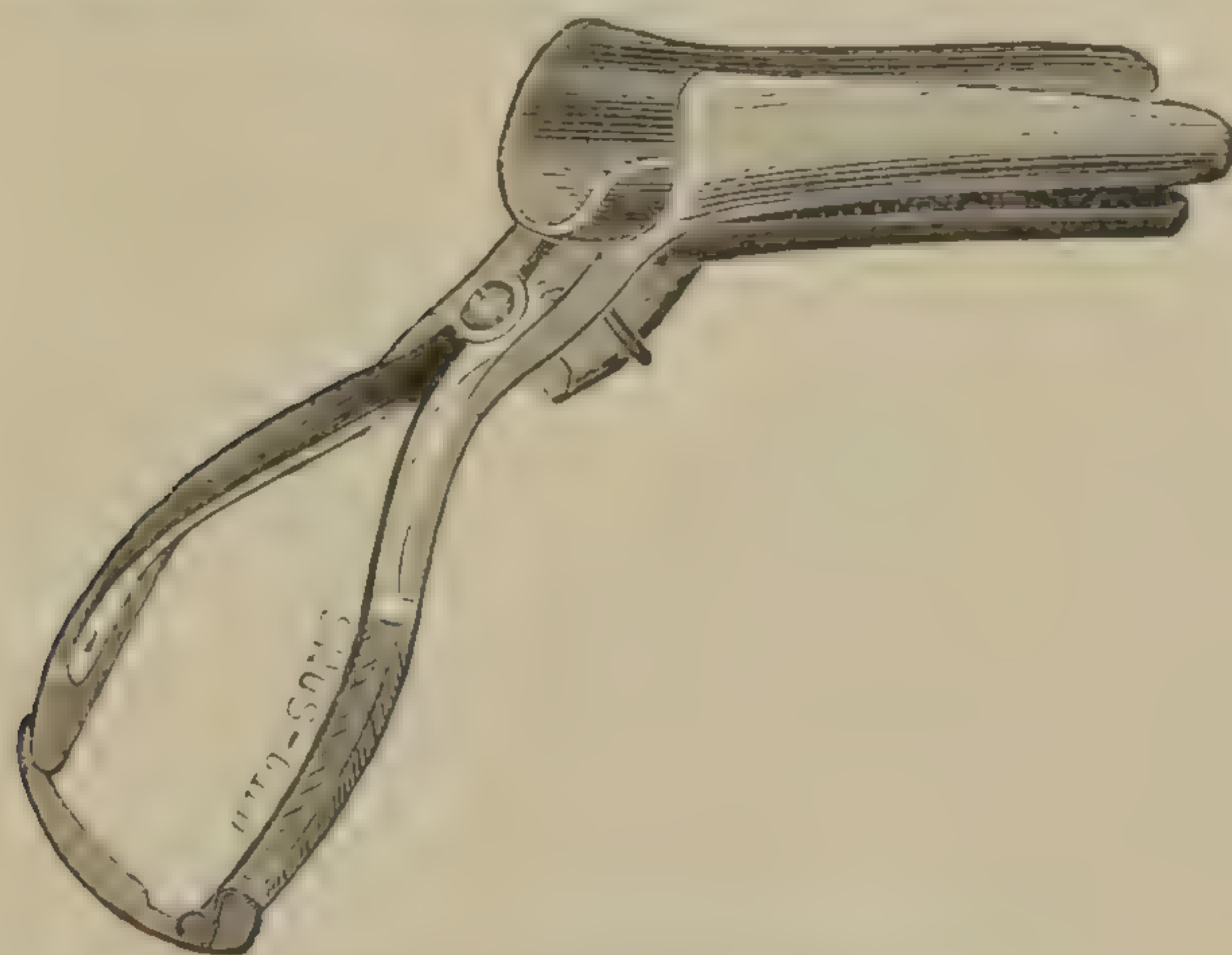
Varieties of the Sims speculum are occasionally useful. A fissure in one blade may expose a lesion in the median line, as a fenestra does in a fenestrated tubular speculum. A bivalve is sometimes useful in a vaginal examination, but a trivalve is too complicated for ordinary use. In early practice I bought a four-valved affair, with a central piston to facilitate entrance.



After the dilator was in place, a blade could be removed to exhibit a lesion in the walls of the canal. I have not employed it for years; it proved too heavy and complex. I once utilized a lamp chimney to make a vaginal examination, and found it to answer a good purpose. Ordinarily the finger is the best explorer, touch proving more discriminating than sight. In some instances both senses are to be utilized.

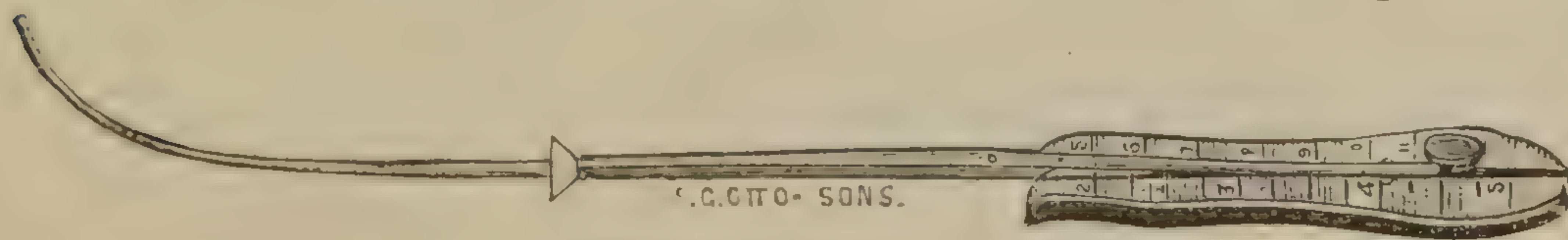


Modified Sims' one blade expanding Speculum.



Ashton's rectal Speculum.

The uterine sound is an implement of value, yet liable to abuse. It is employed to ascertain the depth of the womb, and to discover flexions. In a case of retroflexion, the implement



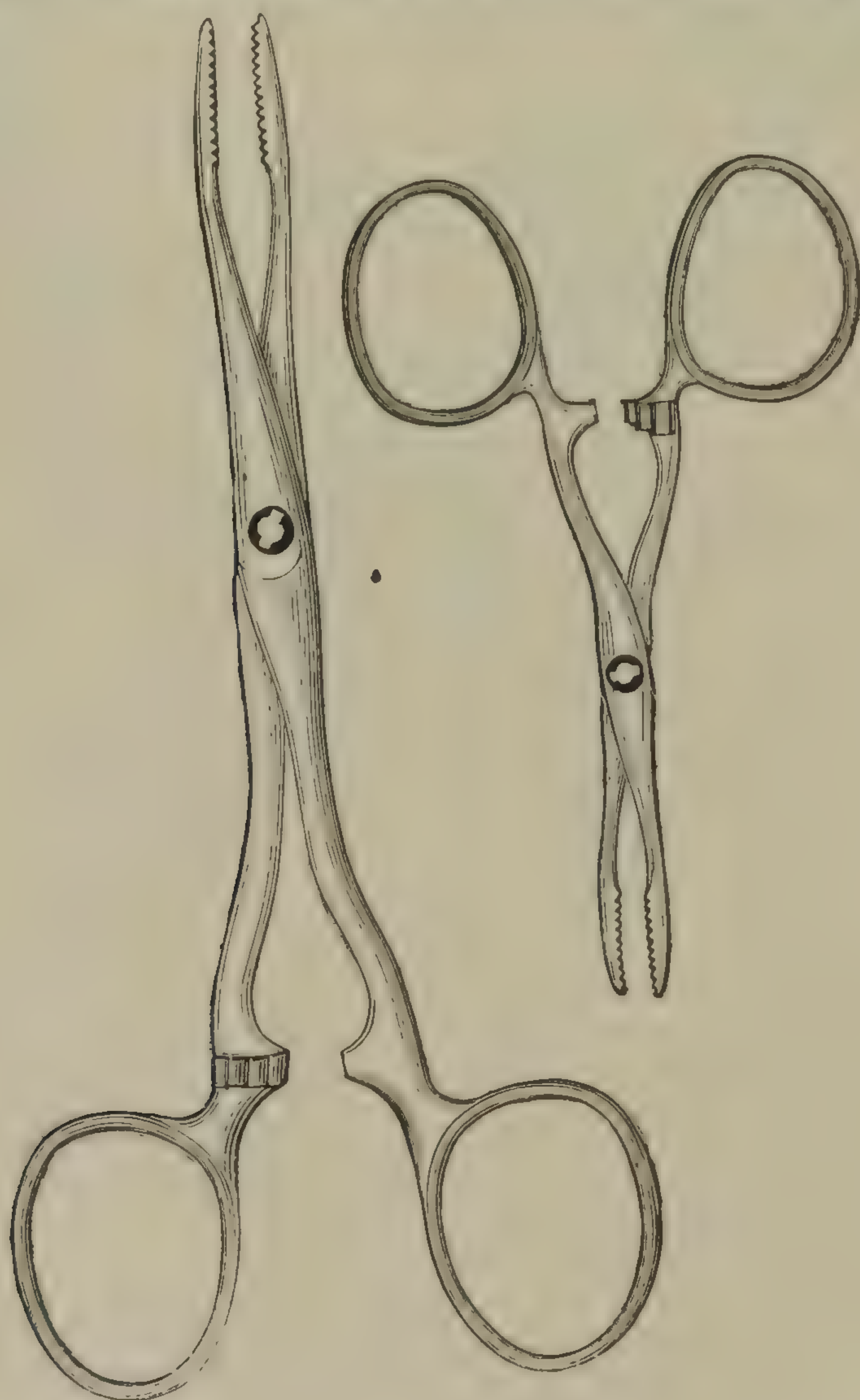
Modified Uterine Sound.

can not be inserted until vulsella forceps grasp the uterine cervix, and pull the organ straight. The instrument may be utilized as a repositor of flexions, and as a discoverer of tumors in the cavity of the womb. A defect of the ordinary implement is that the handle is not quite broad enough. The flexible



instrument is useful to permeate a crooked, distorted, and displaced uterine canal. The notches and knobs on a sound may serve to ascertain the depth of the womb without withdrawing the implement, yet their importance is overrated. A steel instrument having a broad handle is a favorite with me in making explorations, and in replacing a deviated organ.

A curette is a scoop, with nearly a sharp edge, to scrape the endometrium when vegetations spring from the mucous lining of the womb. After the cervix is dilated with proper instruments, the curette may be made to enter the uterine cavity without difficulty. I have used it with success in several instances.

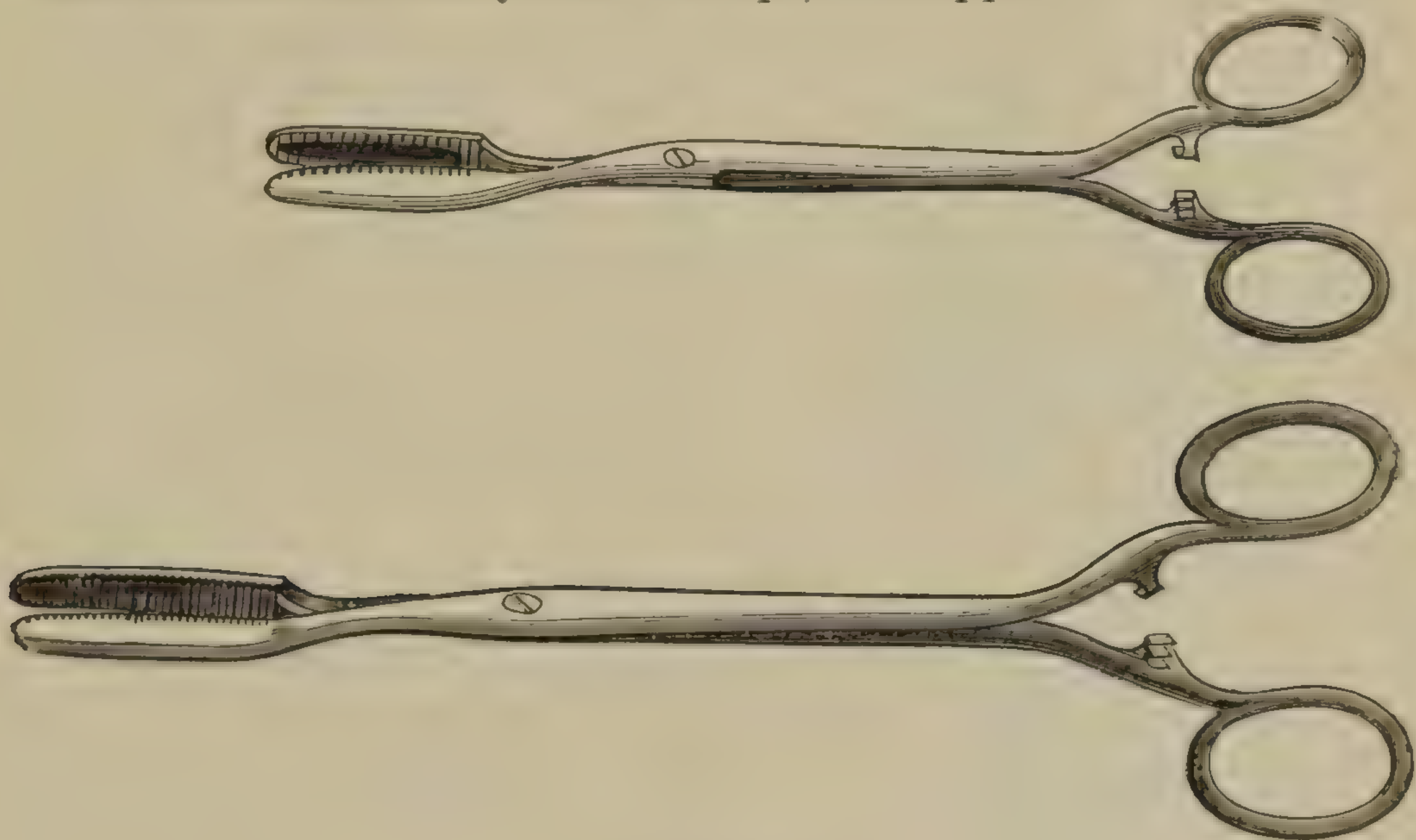


Clamp Forceps—Hæmostats.

The spoon-saw of Thomas does good service in weakening the pedicles of uterine polypi with the attachment in the depths of the organ. A gynæcological *armamentarium* could not be considered full if it did not embrace a curette and a spoon-saw.

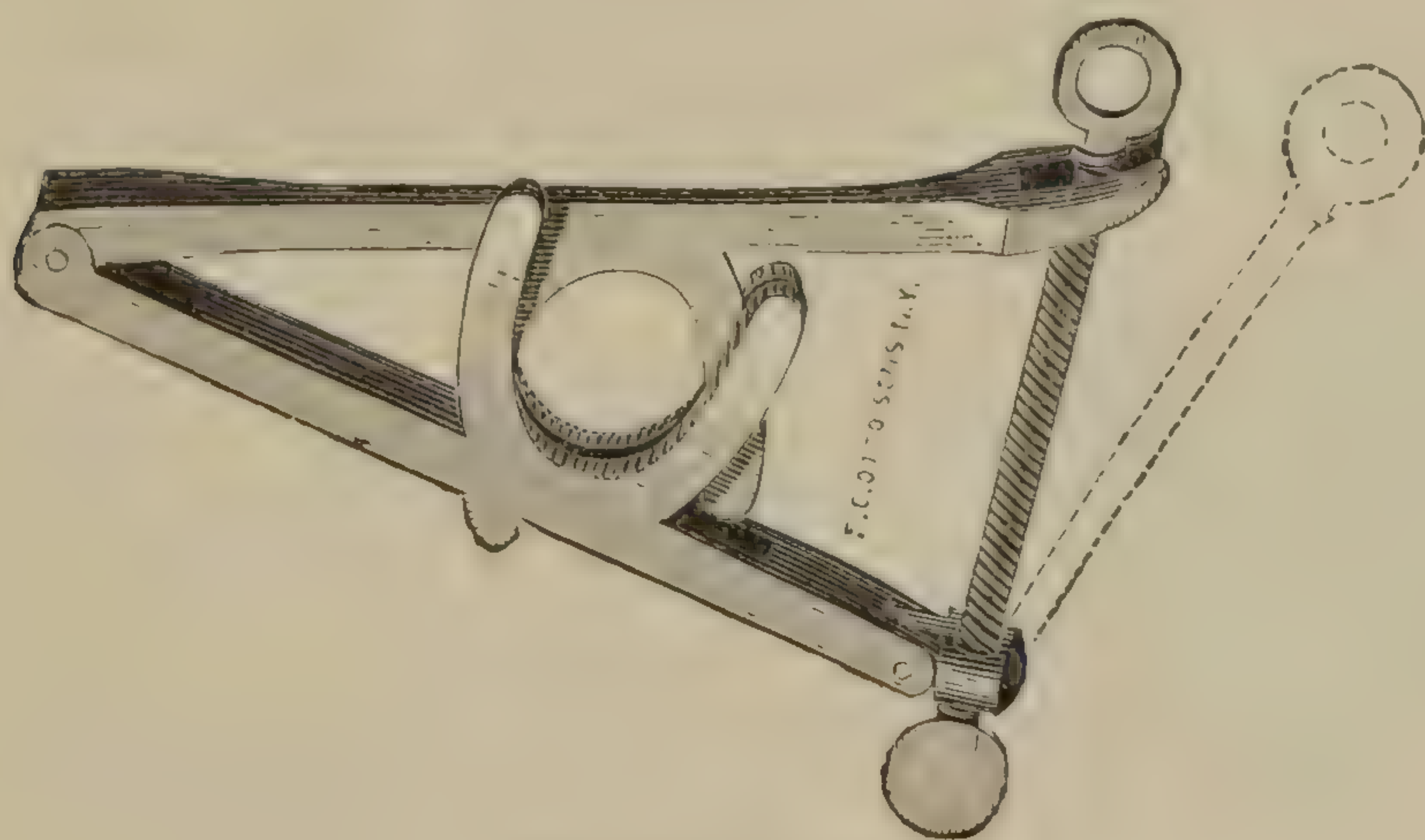


The double canula for carrying a noose over a uterine polypus is no longer in use, but polypus forceps are occasionally employed. After the womb is dragged almost into the world with vulsella forceps, the cavity of the uterus can be readily invaded with scissors and spuds. Polypi attached to the uterine cervix can be wrenched away with forceps, or snipped with scissors



Clamp Forceps.

Clamp forceps, of various lengths and sizes, are a necessary part of gynæcological instruments. They are hæmostats, as a rule, but may be employed to clamp a structure temporarily while an operation proceeds. The longer and stronger will do to clamp the broad ligament of the uterus, and a thin ovarian



Thomas Clamp.

pedicle. The smaller are to compress bleeding vessels; and in ovariectomy, with many adhesions, several pairs may be needed. A dozen pairs like those represented in the diagrams would constitute a small stock. The catch or clamp in the handles is the



pronounced characteristic of the forceps. Large clamps for compressing the pedicle in ovariectomy will be described in another place. The clamp of Thomas may be exhibited as a sample of the kind referred to. The implement is not what it ought to be; or, it might be improved upon.

A variety of pessaries should be at command, though every uterine deviation is not to be treated by the use of mechanical support. To the general use of pessaries I am opposed, yet in selected cases there may be a pronounced benefit secured by the use of a properly selected and adjusted pessary. In fact, I should not think I had done my duty if I neglected this department of gynæcology. In the treatment of special flexions and versions, I intend to repeat the idea here expressed—saying that the average physician is unreasonably and unscientifically opposed to pessaries, his objections being chiefly based on the fact that he does not know in what uterine displacements a particular pessary is needful. The ordinary practitioner must not admit that he is not versed in the ways of gynæcology; therefore he purchases a half dozen glass and hard rubber implements, and tries to cure some uterine trouble occurring among his female patrons. Very likely the first trial is in a case of prolapsion, and the glass disc pessary is so small that the patient loses it in the street. The next case may be one of anteversion, and the pessary selected was designed for the correction of a retroversion. The implement does not adjust well, and pain is provoked by its presence. Then, again, a stem pessary is employed to correct a stubborn flexion, and an ugly ulceration is provoked by the badly fitting apparatus; and no wonder the baffled would-be gynæcologist is discouraged, or provoked to berate pessaries as a whole.



Smith Pessary.

To illustrate the subject of pessaries, I venture to utilize a few cuts which represent a good variety of instruments. The Smith pessary, so called, is an oval ring narrowed latterly, twisted on its top and bottom, with a larger part posteriorly, and a smaller one anteriorly. It is made of hard rubber, highly polished, light, and likely to stay in place when properly applied. It can be worn with ease, if conditions be favorable. It is to correct retroversion and prolapsion. It is to be introduced flatwise, the larger end entering, and gradually turned as the implement glides into place. The posterior lip turns upward, and rests against the Douglas *cul-de-sac*; the narrower end is in front,



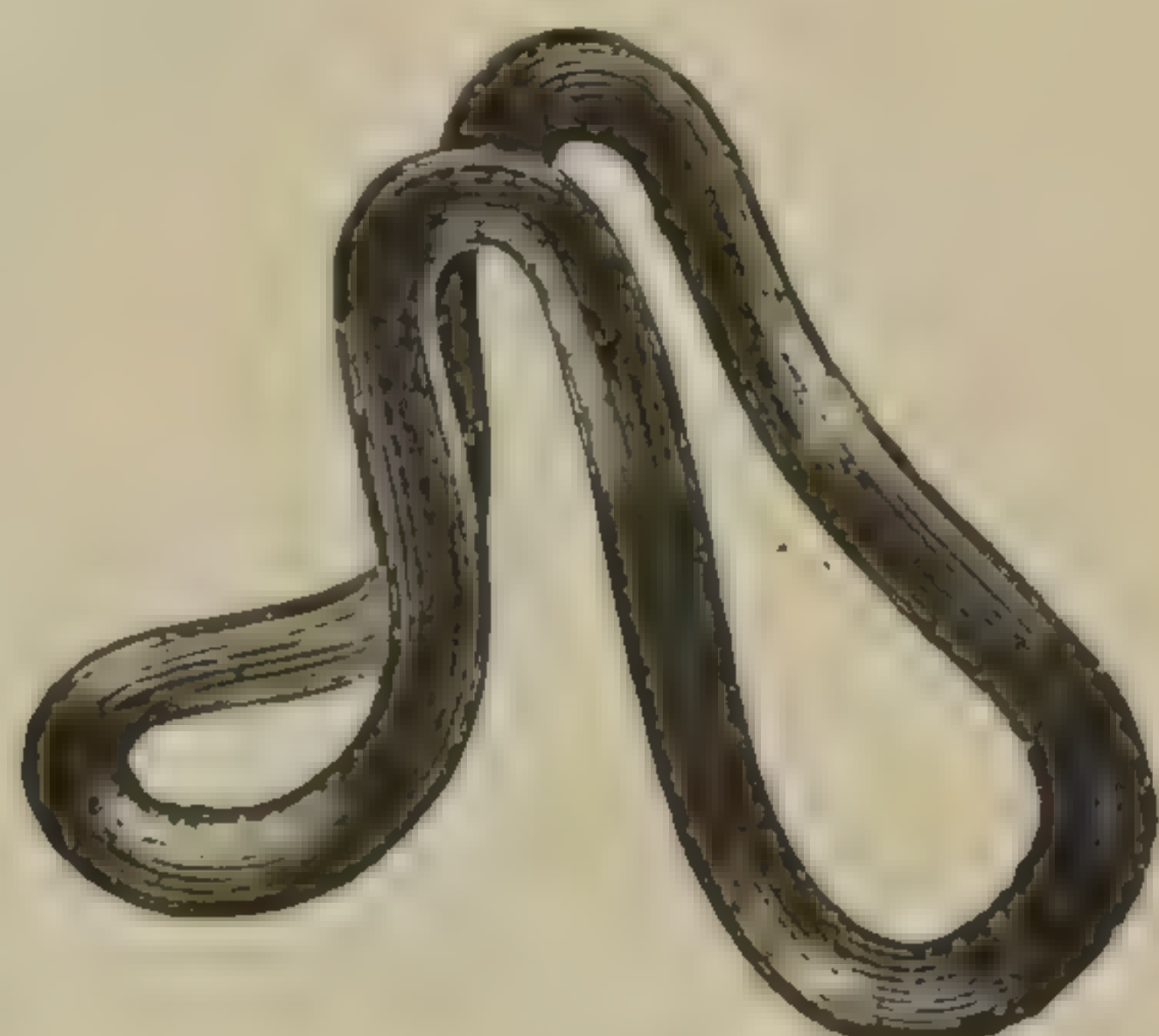
and rests against the bladder and pubic structures on a lower level than the posterior end. The neck of the womb fills the posterior ring, and is supported thereby. If the implement be too small, it will leave its place and be lost; and if too large, pain will be caused by undue pressure on some part of the vagina. Modifications of the Smith pessary are common and in extended use; most of them being considered lever pessaries, though the claim is not always demonstrable.



Bozeman's pessary is a distortion of the Smith implement, and of too marked a modification to be practicable, except in rare cases.



Bozeman Pessary.



Hewitt Pessary.

The cradle pessary, so called, is no better than the disc pessary of glass, yet may be a little lighter. Elderly women who are exceedingly heavy are apt to suffer with falling of the womb. In fact, the abdominal viscera push the womb downward. To



Cradle Pessary.



remedy such evils I have had to use very large pessaries to make sure they stay in place. For such patients I have employed large cradle or disc pessaries; and they have proved quite satisfactory to wearers. Some of the glass discs were from three

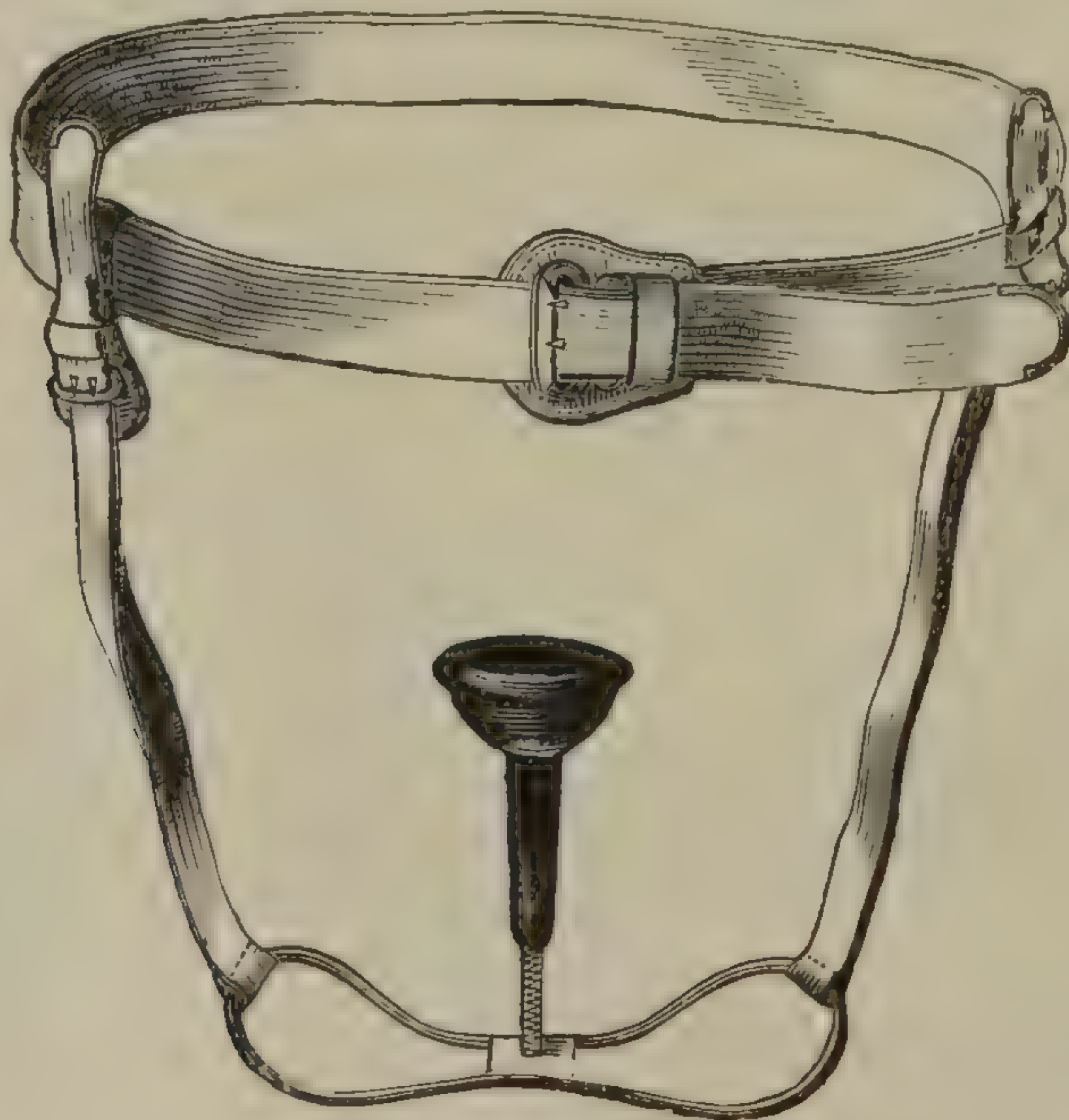


to four inches in diameter, and could not be retained if smaller. They have to be lubricated, and carried through the vulva flat-wise, the fourchette being depressed to the utmost to allow the



Spring Ring Pessary.

implement to enter the genital aperture. After a large disc pessary has passed the vulvar constriction, it may be turned on its face and pushed into the position desired. Such an instru-



Cup Pessary with Abdominal Supporter.

ment should be removed occasionally to have it washed, and to give worried parts of the vagina an opportunity to rest.

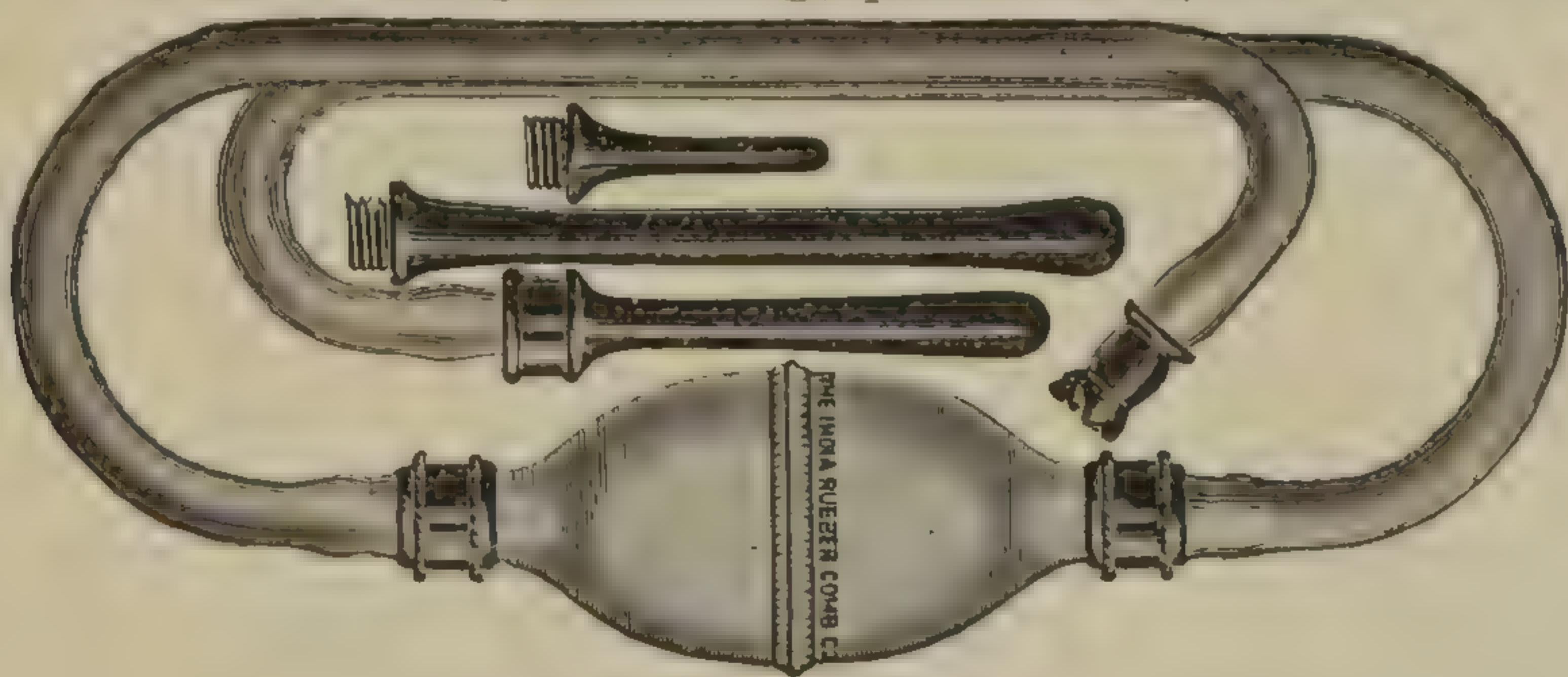
Stem pessaries of various kinds have been devised to correct flexions, much ingenuity being displayed in their construction.



As might naturally be supposed, a pivotal body in the uterine cavity would not be endurable, even if it would stay in place. An implement with a belt to encircle the hips, and having a curved spring with a vaginal piston attached, is readily adjusted and possibly endurable, yet not a very agreeable apparatus to wear. The McIntosh supporter is worthy of trial in states of



prolapse. I have employed a spring pessary with the stem sheathed with lead, to keep straight a retroflexed womb, yet without always producing a permanent cure. The cup pessary to sustain the womb is worthy of consideration while contemplating the various contrivances for imparting mechanical relief where the womb, through falling, produces great discomfort.



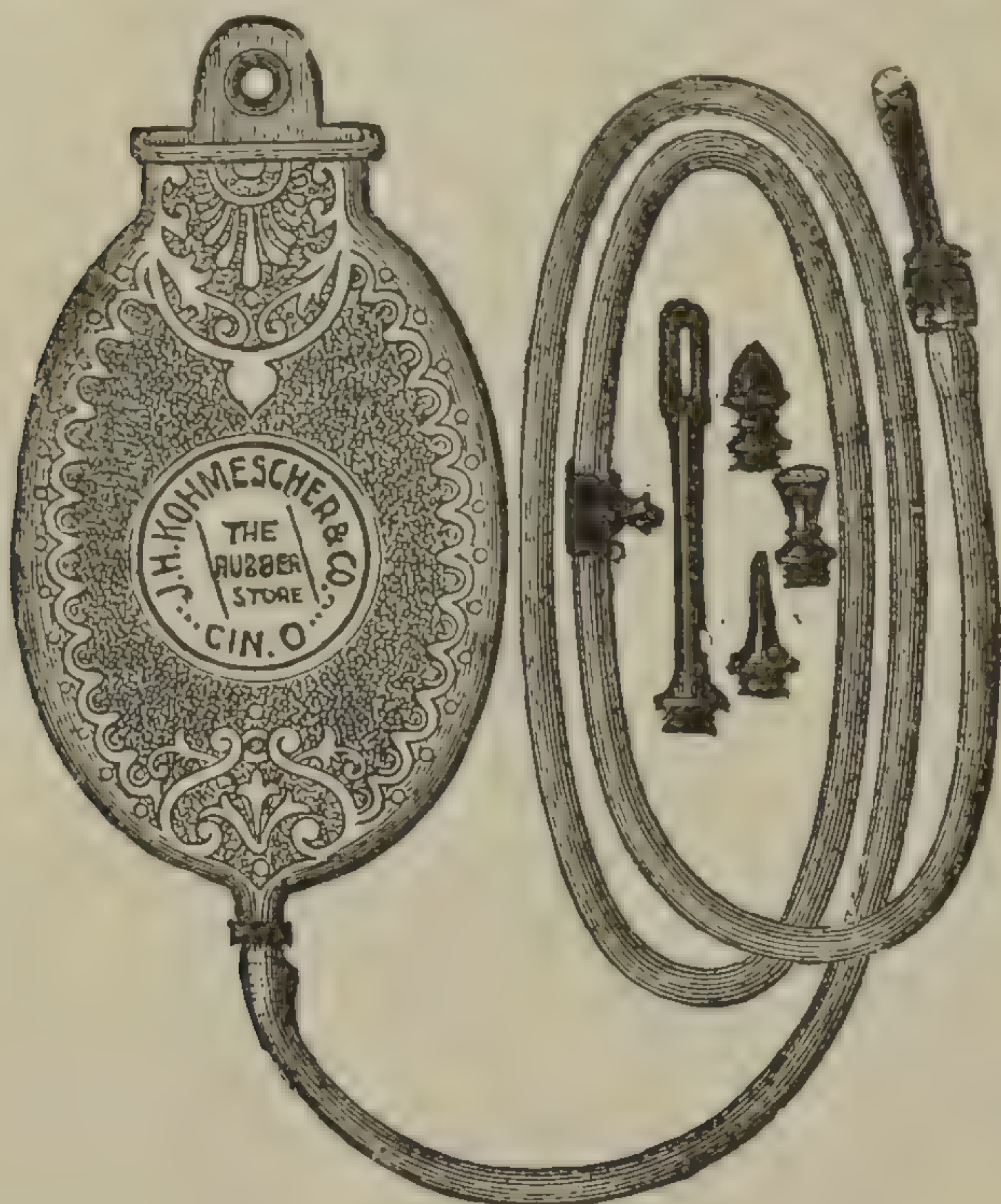
Family Syringe.

At present there is a "family syringe" in every house; and in not a few residences there are to be found syringes for special purposes. The "fountain syringe" depicted is a useful instrument for *douche* purposes. The bag is hung on a peg, or otherwise suspended; and through gravity the water flows in a strong current into the cavity to be irrigated—into the vagina or rectum. Medicated washes should be introduced with hard-rubber syringes which have a piston. Excellent instruments of the kind are sold by every druggist, dealer in rubber goods, and surgical implement dealer.

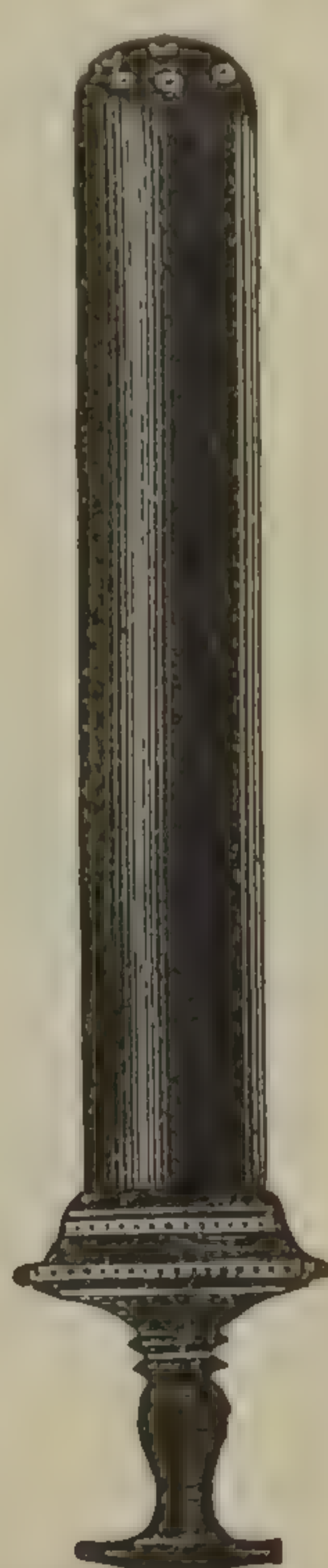
Vaginal syringes of vulcanized rubber are the best for throwing medicated washes into the vagina. They are manufactured in various sizes.



A long-nozzled, intra-uterine syringe should be kept in stock for special service; and if employed with care the nozzle need not harm the endometrium. The danger of throwing fluids through the Fallopian tubes into the cavity of the peritoneum,



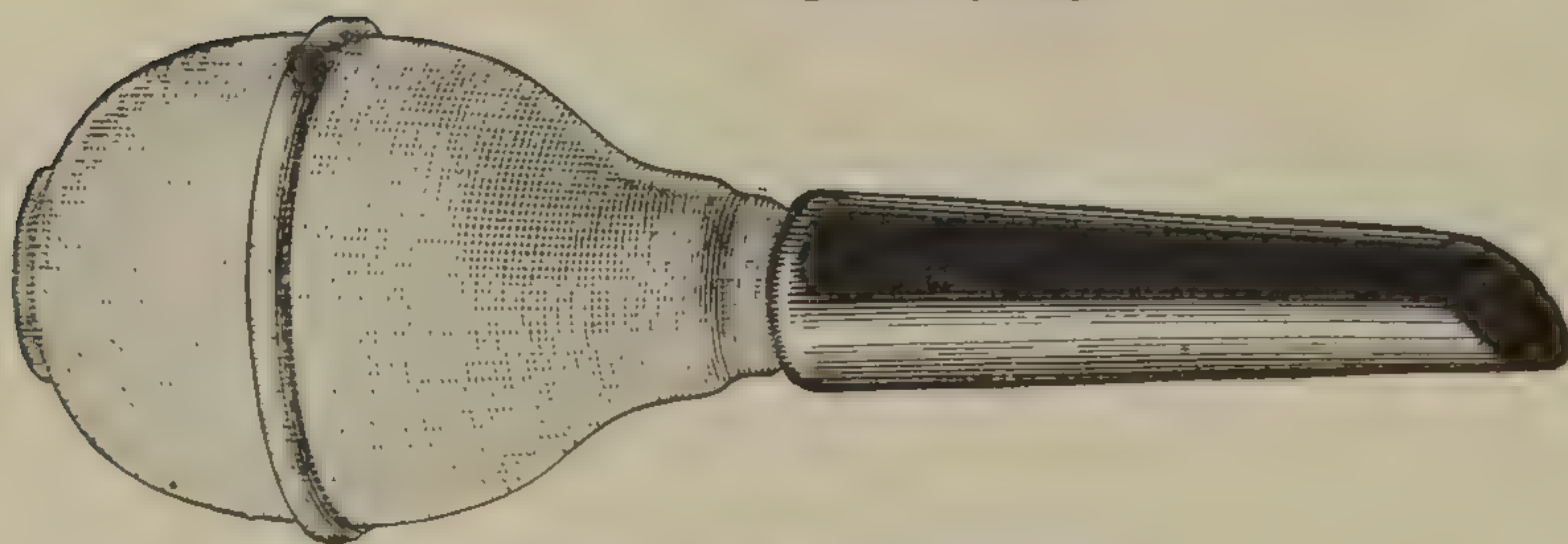
Fountain Syringe.



Vaginal Syringe.



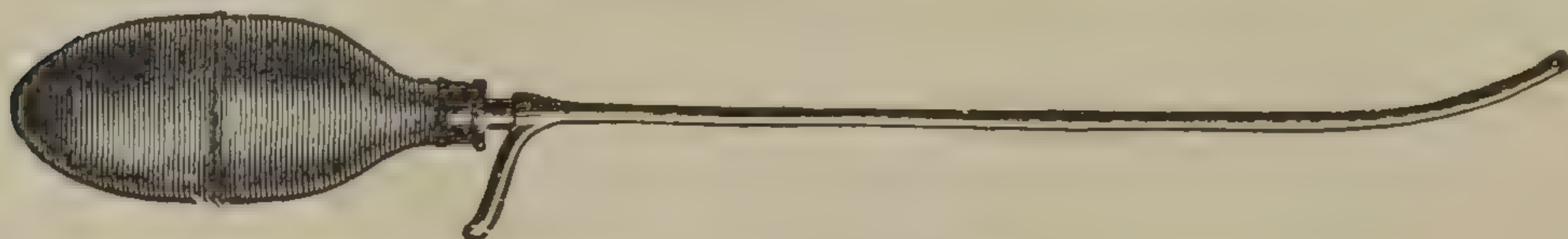
Vaginal Syringe.



Molesworth Vaginal Irrigator.



Intra-uterine Syringe.



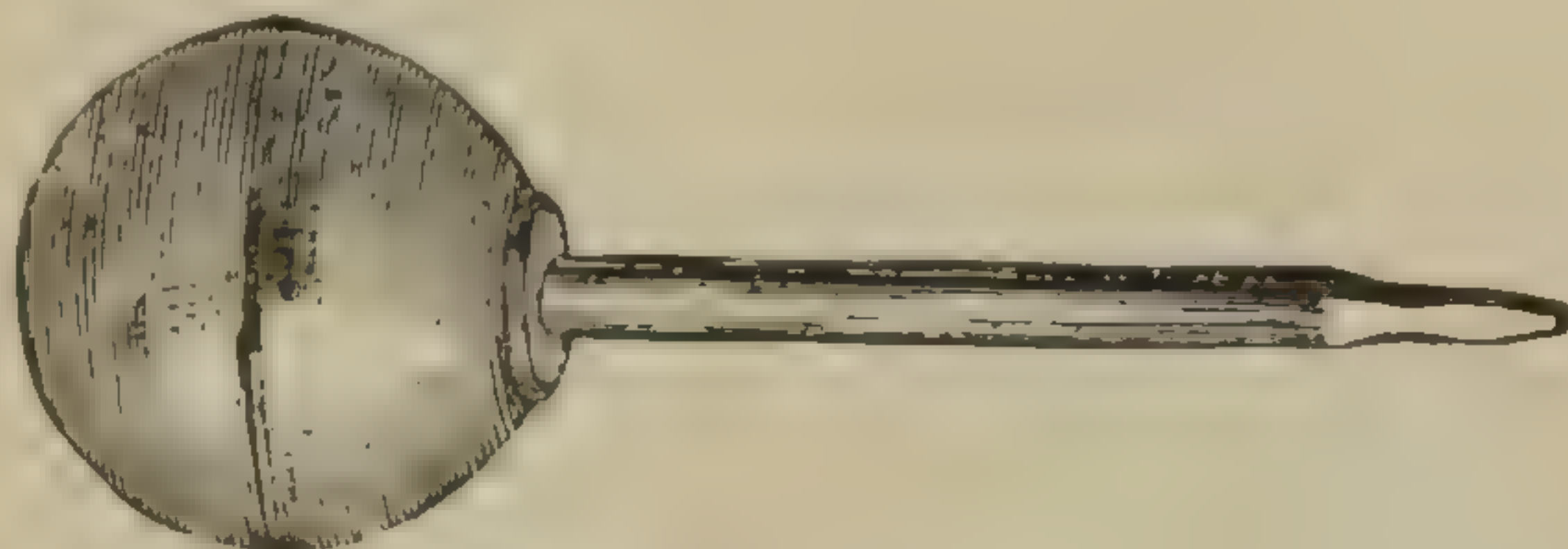
Molesworth Uterine Syringe.

has been over-rated. The Molesworth irrigator returns the fluid sent inside the womb, as does his vaginal irrigator. The rubber bulb and hard tube constitute an excellent instrument for flushing the vagina and neck of the womb

A smaller instrument made on the same plan is handy to wash out the bladder of the female. The patient can be instructed

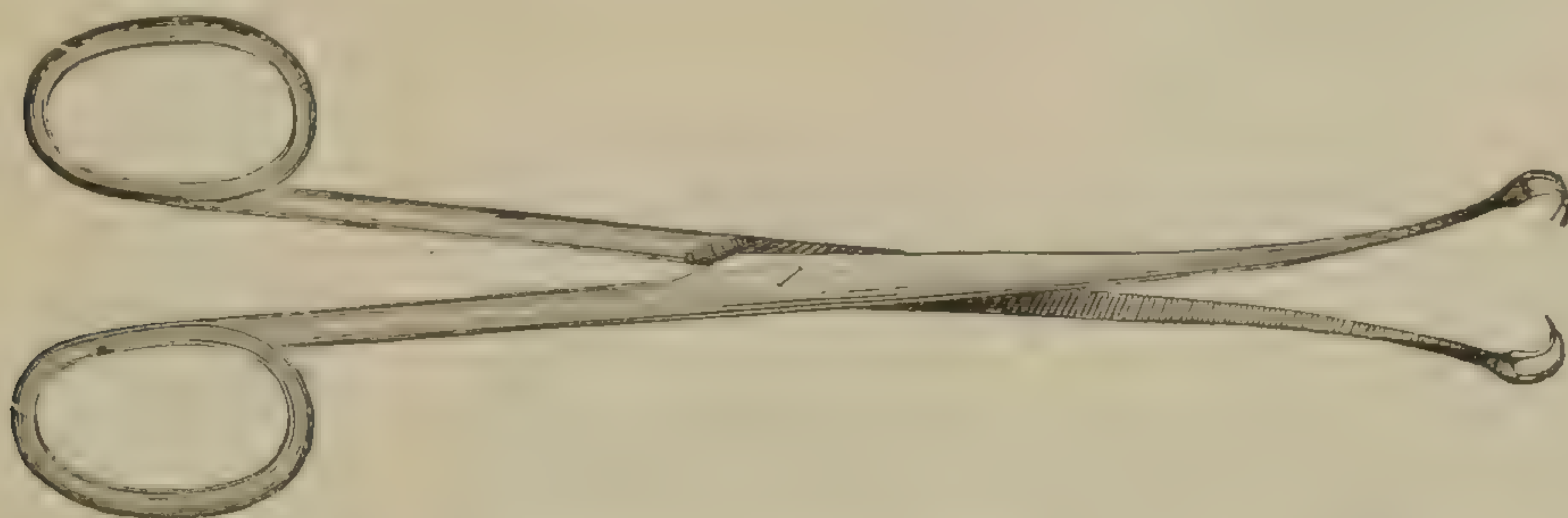


with regard to its use, and thus be enabled to cure herself of cystitis, as well as to relieve distresses depending upon a putrescent state of the bladder.

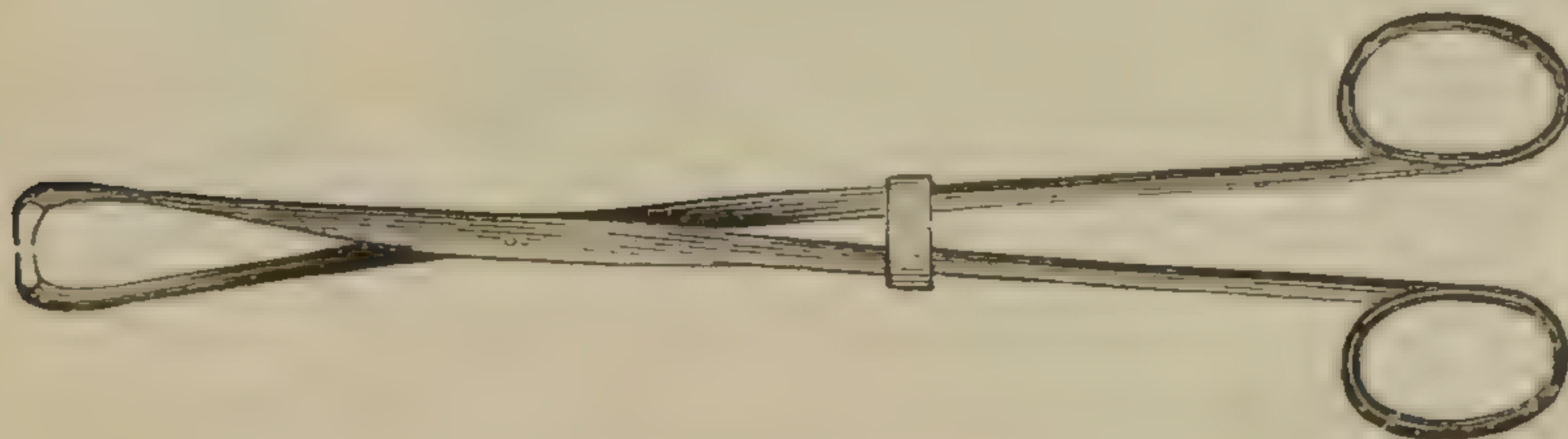


Bladder Syringe.

Vulsella and tenaculum forceps of various kinds never come amiss. Straight instruments are most in use, yet a single pair is not enough. I use a small implement on polypi, and other tumors of the uterine cavity; and a larger and stronger pair to seize the neck of the womb and drag it downward. A curved pair is a variety to be commended. They all should have a catch in the handles, though the snap is not exhibited in the diagrams. In making purchases, the buyer should select only such as are thus provided.



Straight Vulsella Forceps.



Tenaculum Forceps.



Curved Vulsella Forceps.

Polypous forceps with serrated blades are ever convenient; and they should be strong enough to wrench a tumor from its bed. Weak implements of the kind are worse than useless.

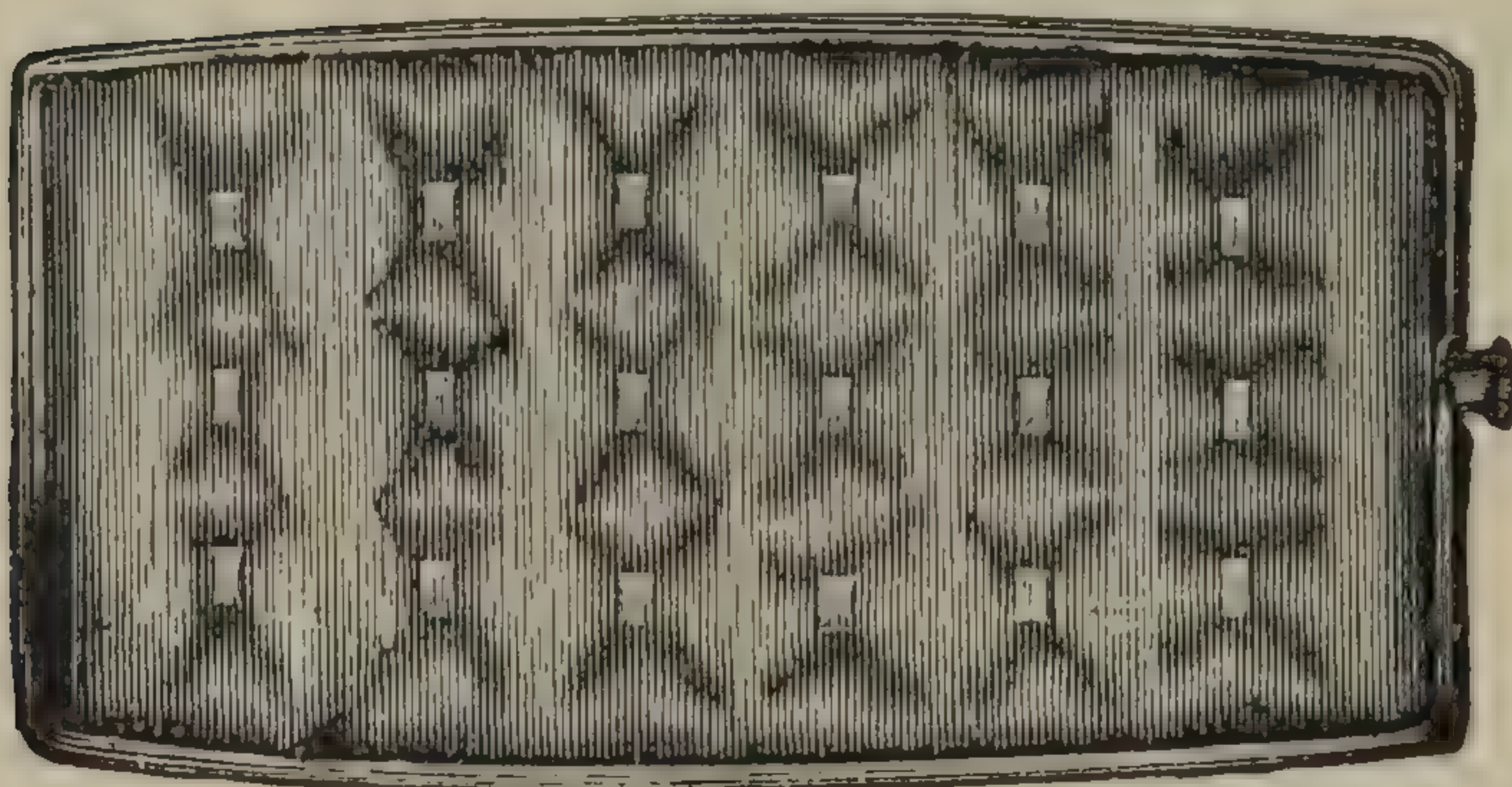


In the passage of needles in cavities, such forceps are indispensable.

A rubber shield to protect the bed has lately come into use, and has been found to answer an excellent purpose. The flap or curtain may drain to one side of the operating table, or at the lower end. The hips of the patient rest within the elevated border. It is employed in laparotomy, perinæal operations, and in the closing of a vesico-vaginal fistula.



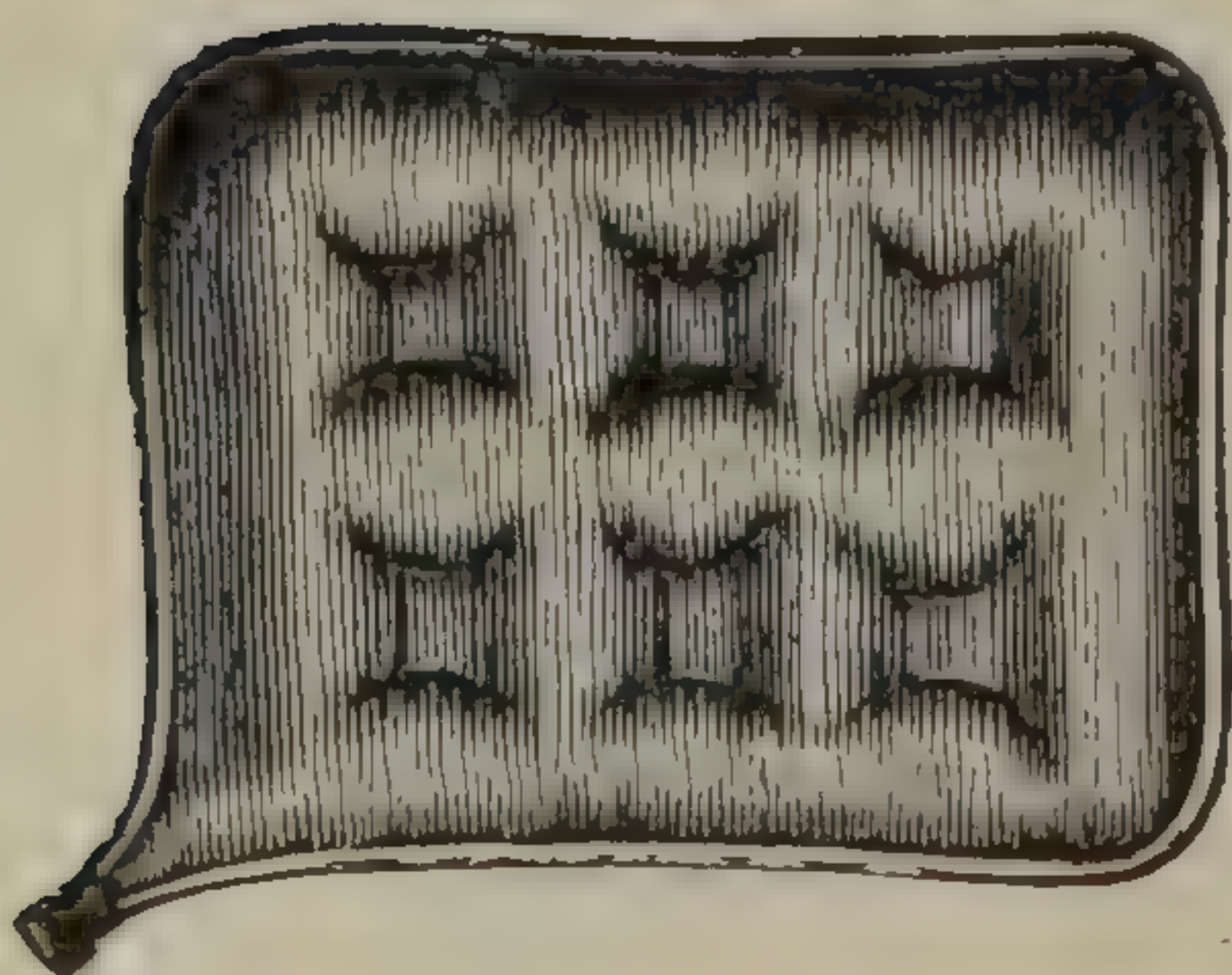
Rubber Shield to protect the bed.



Water Bed.



Polypus Forceps with catch in handles.



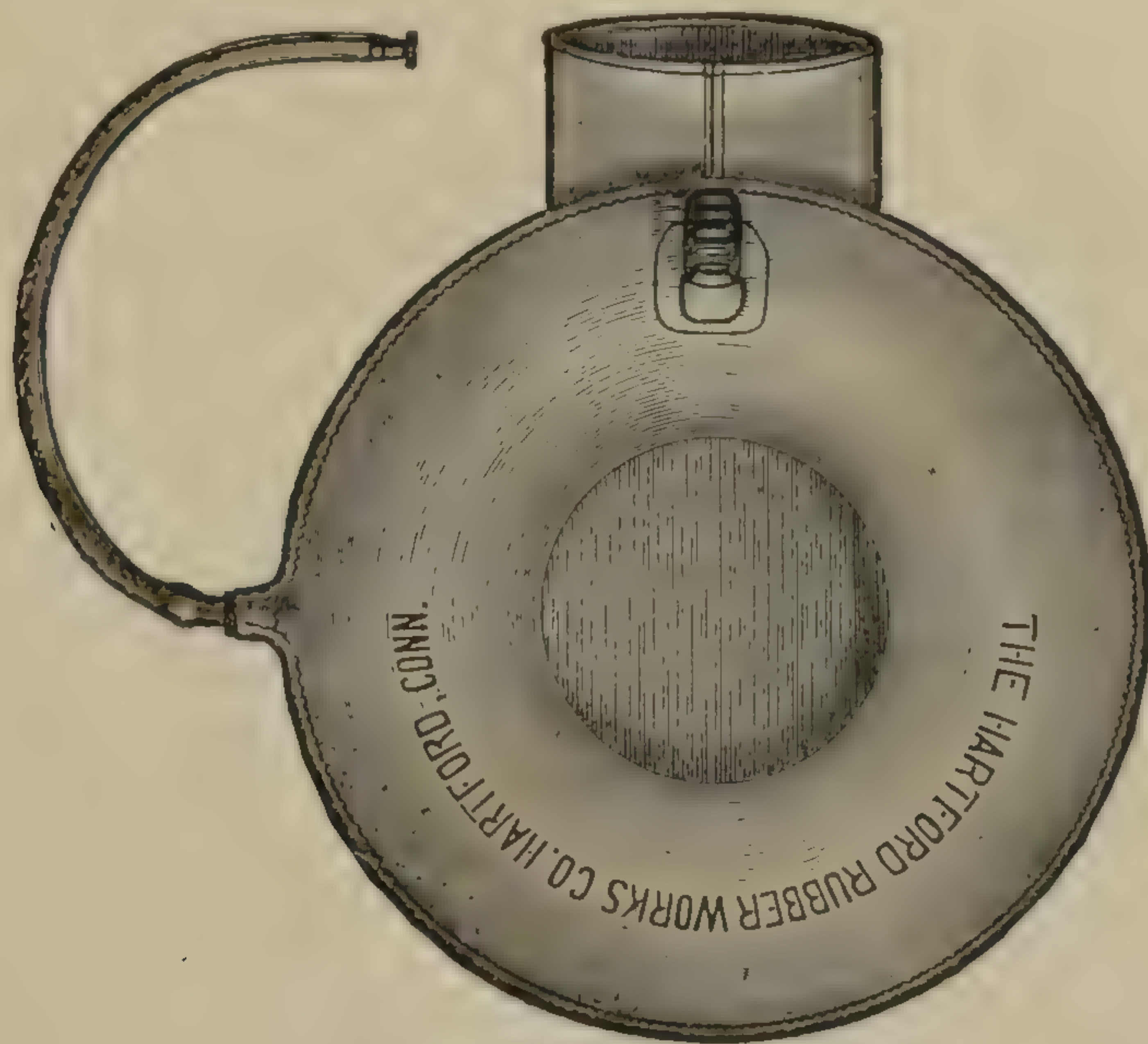
Water Bag.

In the sick room there may be used to advantage a water bed to cool a feverish patient; a water bag for a cushion or pillow; and a rubber bed-pan, which is at least a luxury, if not a necessity. In a gynæcological hospital there should be an abundance of conveniences for the desperately sick.

The gynæcological operator who goes from home needs a rubber bag for sponges, animal ligatures, and such things as are easily damaged by drying; and he needs a reticule, or travelling bag, to hold an assortment of gynæcological instruments, or special lots for given cases.



For Porro and Cæsarean operations, there is a demand for a few instruments that might not be needed in pelvic surgery. The gynæcological reticule should be packed for emergencies.



Bed-pan.



Rubber Bag for Sponges.



Reticule.

Special appliances will be described when operations are given in detail. Needle holders, suture carriers, ligatures, drainage apparatus, and dressings, will need description as their uses are depicted or described.



## SECTION IV.

USES OF THE UTERINE SOUND.

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It is important, sometimes, to explore the uterine cavity with a sound; yet the manipulation is not always easy, especially when flexions of the organ have imparted angles to the canal. In an average or ordinary case the implement called the "uterine sound" can be inserted to the fundus of the organ with facility, but in the event the os be occluded, or the canal of the cervix distorted, the introduction is attended with difficulty. Often the os uteri is near the border of the cervix, though a central impression be felt by the exploring finger. The indentation feels like the one between the cartilages at the tip of the nose.

The uterine sound is the easiest introduced when the patient rests on her left side, with the legs flexed on the thighs and the thighs on the abdomen. The abdominal viscera, in that attitude, force the uterus to a position low in the pelvis, and hold it steady while the forefinger of the right hand finds the cervix and os. The point of the sound then is sent along the hollow of the hand to the finger, along the finger to the os, and from the end of the finger to the canal of the cervix. The implement is not to be pushed, but gently insinuated so as to escape lodging in a fold, crypt or pocket along the inner walls of the passage. Inasmuch as the canal is not straight, and the furrows and follicles are pronounced, a lodging of the bulb of the sound in a sulcus is a very common difficulty. However, the expert manipulator soon ascertains the nature of obstacles, and adroitly overcomes them. In more than one case I have found a blind pouch where the os ought to be, and the cervical canal quite to one side, a congenital deformity existing. Then, again, in the event of puffiness on the part of the cervical glands, the canal is practically occluded, though it may be penetrated by patient manipulation of the sound.

In a discussion of the subject it may be pertinent to inquire when and why the sound should be introduced into the uterine cavity, as well as to state when sounding of the womb should



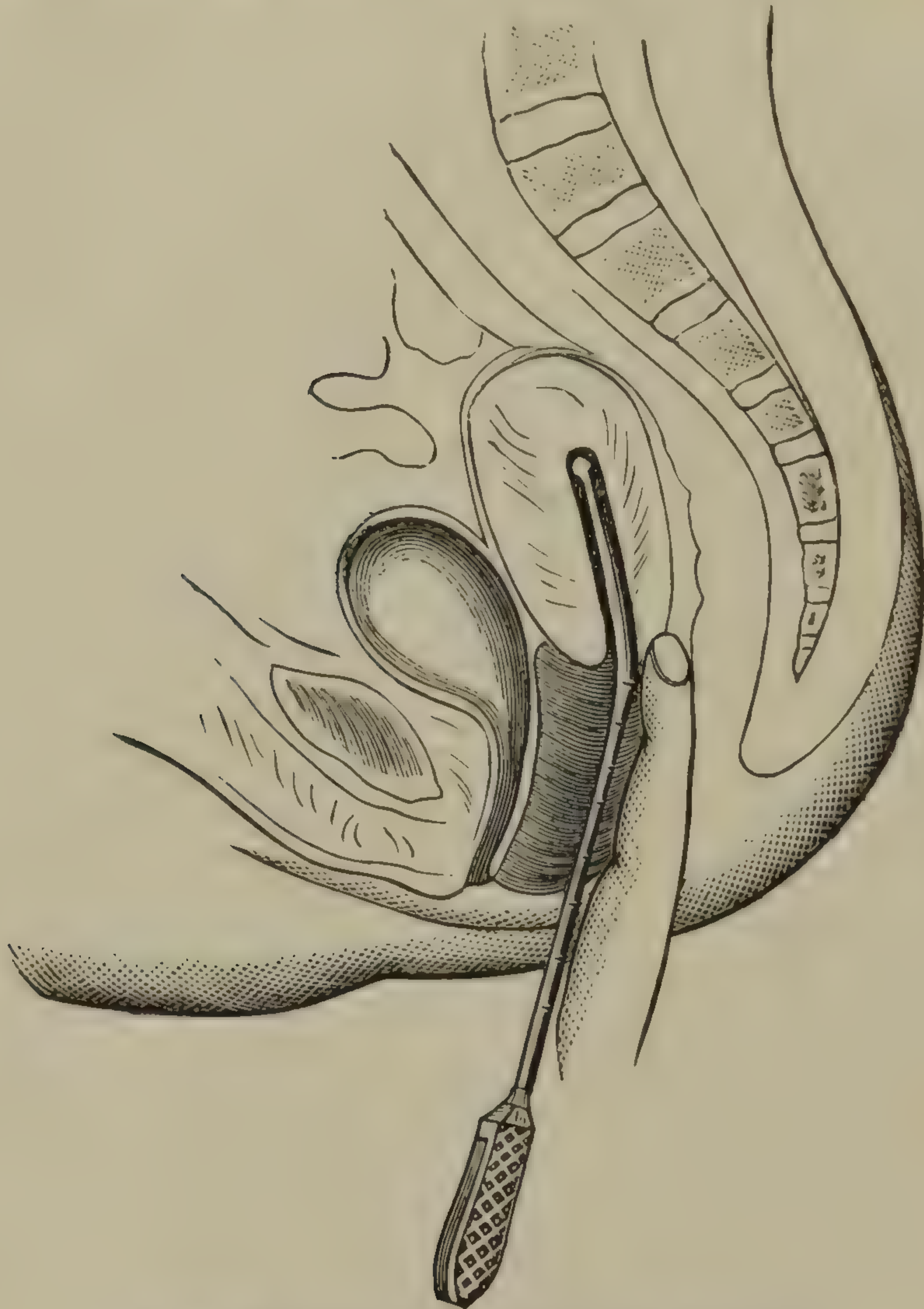
not be attempted. Though the careful introduction of the sound need do no harm, the implement should not be introduced without a seemingly rational cause or excuse. If a woman be pregnant the sound should not be used; and if she be possibly pregnant sounding would be imprudent and unprofessional. Granting that pregnancy is possible, during the child-bearing period of a woman's life, conception is impossible if there have been no sexual contact. I remember of once asking a woman who was to undergo an examination, if it were possible for her to be pregnant;—her laconic and emphatic reply rang out, "It is a physical impossibility." To such a reply there could be no farther questioning. Married women can not tell whether they be pregnant or not, unless cohabitation be impracticable. Although a sound might be carried inside a pregnant womb, and miscarriage not be provoked, the chances are not to be taken or risked. Although it might be desirable, in making out a diagnosis, to know whether pregnancy existed or not, it is best and generally safe to let matters rest till time and evolution develop a true state of things.

The conditions which call for the use of the uterine sound or explorer are multiple. In a case of sterility, with a desire to know the nature of the abnormality, a sound introduced within the uterine cavity would measure the depth of the organ, and determine whether flexions or obstructions existed or not. Without such exploration much would be left to conjecture. In fact I regard the uterine sound as indispensable in a gynecological practice. It is not to be used through a tubular speculum, but may be manipulated in connection with a Sims or duck-billed dilator. However, the implement can best be used without any kind of speculum. If the patient be on her back, the sound, while entering the os, may push the cervix beyond the reach of the poising finger,—but if she be upon her side on a bed, lounge or operating chair, and the limbs be strongly flexed, the womb is firmly held in contact with the guiding finger, so that the sound will not push it out of reach. A pregnant womb is so spongy at the mouth that a sound does not easily enter the os or penetrate the pulpy canal of the cervix. And when the menstrual *nixus* is on the *os tincæ* is rather soft and spongy, as in the early stages of pregnancy.

It may be remarked for the benefit of novices that a small sound is more likely to become pocketed or obstructed in its passage through the canal of the cervix than a larger instrument. I rarely use the standard womb sound, but utilize a



steel instrument which is longer and has a broader handle. With this I can more readily lift the fundus of a retroflexed uterus into its normal and elevated attitude.



A finger guides the uterine sound into the womb.

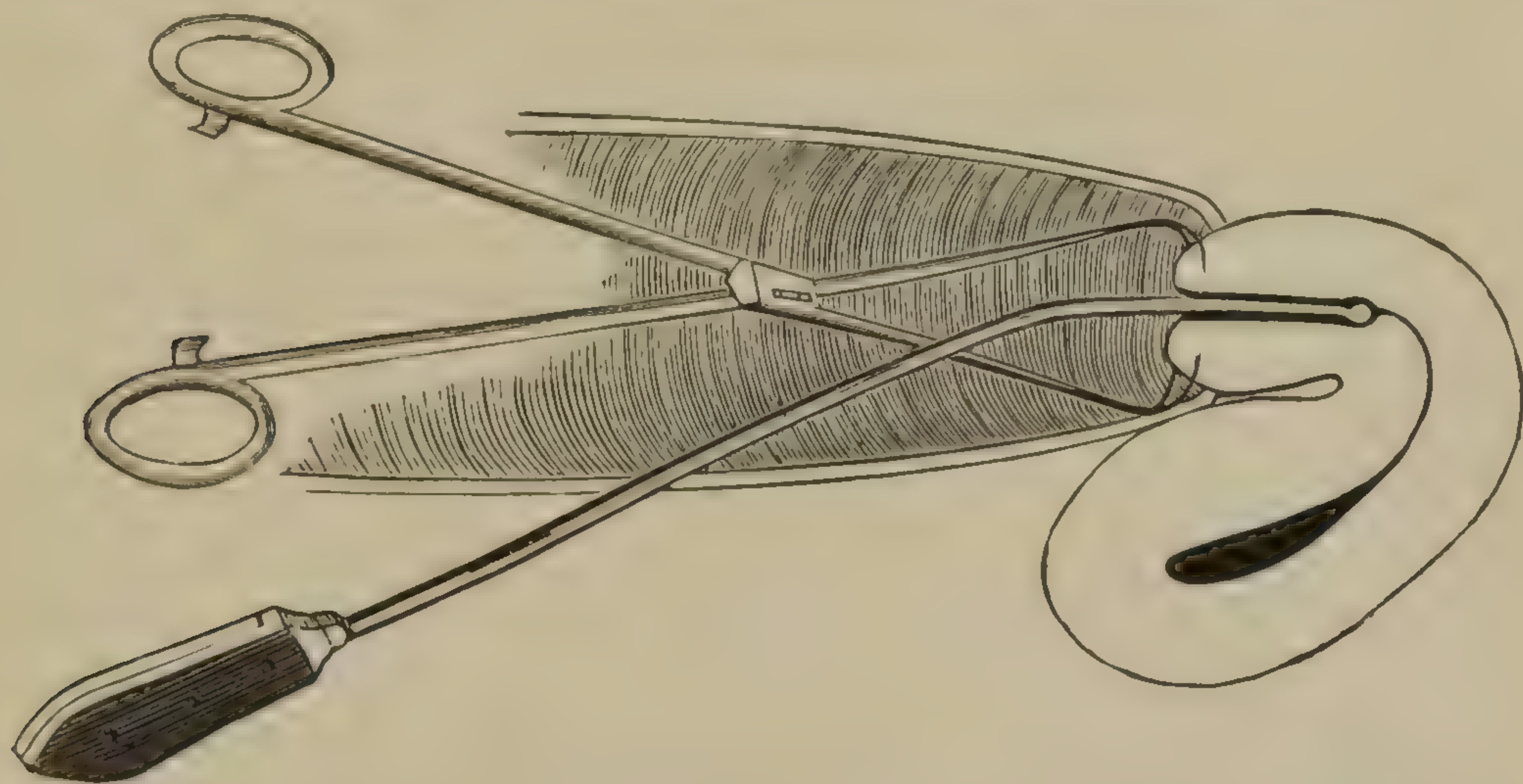
The advantages of the official sound are, that it is knobbed and notched near its entering end, to take measurements, and towards the point the implement is pliant or flexible. But in replacing a retroverted or retroflexed womb, lack of firmness in the implement is a disadvantage. Furthermore, the handle of a legitimate sound is not broad enough to have the hand impart leverage to it. The stronger steel sound can be made to take the depth of the uterus by using a finger to maintain the spot where the os rests when the point of the implement is at the bottom of the uterine cavity. Upon withdrawing the sound the distance between the spot where the finger rests and the end may be measured with a pocket rule.

The foregoing diagram exhibits the sound in the uterine cavity, with the organ in a normal state. Hardly anything could



be easier or plainer, but let the womb be retroflexed, and the manipulation is not so easily executed. I am astonished to find so few practitioners of medicine who know how to introduce a sound into a retroflexed uterus.

The angle at the point of flexion will not permit the sound to pass till it be overcome by a straightening process. This is accomplished by grasping the neck of the retroflexed organ, and pulling downward as if to bring the womb into the vulvar fissure. The dragging force straightens the uterus and tilts the fundus out of the Douglas *cul-de-sac*, and into the normal attitude. While the cervix is grasped by the claws of the vulsellum forceps and held at rest, the sound may be easily carried to the fundus of the organ—to the bottom of the uterine cavity. It



Vulsellum forceps grasp the uterine cervix that a dragging force may be exerted to straighten the retroflexed womb.

has been asserted that the anterior lip of the uterine os is to be grasped in retroflexion, and the posterior lip in anteversion, but the discrimination is not necessary. Either lip will answer the purpose. However, it is not well to grasp the entire cervix, lest no room be given for the entrance of the sound. I will state that a vulsellum with a snap or catch in the handles is useful in the event that it be convenient to maintain the grasp without the aid of a hand. The forceps are to be closed when introduced into the vagina or withdrawn. The clasping and unclasping are to be executed with care, a finger guarding the sharp points of the claws, except when they are made to grasp the uterine neck or that part designed to be seized. The use of a duck-billed speculum aids materially in the manipulation of vulsellum forceps. To execute such manipulations with facility the patient should rest on a gynæcological chair or table. The punctures made by the claws of the vulsellum



are scarcely felt, and are followed by no appreciable harm. As soon as the uterine neck is pulled upon, the sound slides along without obstruction. The pull with the vulsellum straightens the womb—overcomes the retroflexion—taking the angle out of the canal. The sound passes without the use of force, though some dexterity may be demanded. Once in place the sound holds the womb upright, and the vulsellum may be removed.

When the fundus of the retroverted or retroflexed womb is carried into its normal attitude it is a pity the organ will not stay there, but experience teaches that the strong tendency is to retroflexion. Pregnancy will take the fundus out of Douglas' *cul-de-sac*, but to return again after *involution*. However, the use of the sound as a restorer of a retroflexed womb to its normal attitude is in the line of cure. No one thing will serve a better purpose.

When the uterus becomes myomatous, the sound determines not only the depth of the uterine cavity, but indicates where the bulk of the tumor is. Sometimes the canal is in the hypertrophied organ's front aspect, and as often it inclines to its posterior border. Occasionally the sound has to be bent near its entering end to accommodate the curve to that in the cervical canal ; but to make much of a curve is to unfit the instrument for making further progress in the way of entrance. It is possible for the os uteri to rest so high or so far behind the pubic symphysis that it can not be reached with the finger. In the development of a myoma the cervix may be greatly distorted—carried so far from its usual place or position—that it is found with difficulty. I have experienced trouble in making the sound enter a distorted and myomatous womb, so that I will admit that it might be impossible to successfully sound a uterus, in rare instances.

In the event of a tumor developing in the cervix so as to distort or occlude the canal, it might be vexatious to pass the sound. The point of the implement could be caught in a lacuna or crypt, or fall into a pocket. A sharp angle in the neck of an anteverted womb might block the way of a sound. I have had to experiment a half hour to make the end of the sound permeate the cervix and reach the uterine cavity. The trial is sometimes utterly tentative, the manipulator trying one change and another till seemingly no other way remains untested ; and through all only patience will succeed. To worry and exert force will result in failure.

Lateral flexions and curvatures might prove obstructive to



the passage of a sound, yet I can hardly conceive of a deviation or distortion of the kind which need to thwart tentative efforts. A finger in the vagina may be made to correct a tilt in the womb. It may push a retroflexed fundus out of the *cul-de-sac* of Douglas, especially if the patient be in the knee-chest attitude.

In myomatous distortions the womb is from five to eight inches deep, therefore a large part of the sound would be used in reaching the greater depths. In passing the sound the implement may come to an abrupt stop as if at the bottom of the cavity, yet be far from that point. While exploring myomatous wombs I have been able with the fingers of the left hand on the hypogastrium to feel the near presence of the sound's inner extremity, and be able to judge thereby the position the uterine cavity occupied in the tumor.

In one instance where the sound lodged after entering three inches, a finger in the patient's rectum gave the implement an impulse which freed its point and guided it along to greater depths. The expert manipulator is master of many expedients.

I have found a womb six inches deep when the organ was neither pregnant nor myomatous, and which gradually contracted to its normal depth. I could not account for the remarkable state of things unless it was that a tumor—polypus or hydatids—had been developed and discharged. In one instance, an ovarian tumor became adhered to the uterus, and in its growth carried the womb upward, and lengthened it several inches. The ovarian cyst had been tapped and the operator's trocar barely escaped transfixing the elongated organ. The uterus was not dragged directly upward, but to the left, so that a sound introduced into it would be carried off to one side, or obliquely. Such a state of distortion could not be detected without the use of the sound.

In the event of polypus growing from the fundus of the womb, the sound can be made to follow the tumor to its base or pedicle, and determine the extent of its attachment. In fact the sound is an efficient explorer and *feeler*, especially in experienced hands.

A sub-involution following abortion or parturition could not be understood without the use of a sound. Not only is the perpendicular depth of the organ to be measured, but the width of its cavity. With a hand on the hypogastrium the thickness of the uterine walls might be estimated.

Cancer of the uterine fundus may be determined, and its



*status* or progress ascertained by the touch of the sound. Epithelioma of the cervix may require the use of the sound to determine whether the disease extends above the point of possible removal. If malignant degeneration do not extend above the neck, excision or amputation is possible.

Finally partial inversion of the womb is to be determined by the use of the sound, together with manipulation through the hypogastrium. If the implement discover a round fundus projecting into the cavity of the organ, and fingers in the rectum find the fundus of the uterus sunken within itself, like the bottle of a champagne bottle, the diagnosis of partial inversion is pretty well established.

In an investigation to decide whether the neck of the womb be pervious or not, the sound, or an implement of the kind, is indispensable; and in attempts to demonstrate the existence of a double uterus, the sound becomes distinctive in its demonstrations. Although, as has been said, the uterine sound has been used needlessly, and may have done much harm, it is as essential to the armamentarium of a gynæcologist as almost any other instrument.

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### THE USE OF THE VAGINAL SPECULUM.

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The tubular "speculum" is not an instrument devised to examine the vagina, but to illumine the os and cervix uteri. However, the implement may be utilized to examine the vaginal walls, the instrument being slid backward and forward as the eye inspects parts which fall into its lumen. The tubular implement was invented first, then the univalve or duck-billed speculum of Sims, and finally any range of varieties with two, three, and four valves or blades. While the tubular has been superseded, as it were, it still is a valuable implement to bring the os tincæ into view, and to guard the vagina while irritating and caustic medicines are applied through its cavity. When cauterization of the os and cervix was in vogue for the cure of "ulceration" the operator could not execute the treatment without the aid of the tubular speculum. No implement is better known. It is a glass tube six inches in length, flared at its outer end, and lined with mercury to render its surface bright. A variety of sizes is on sale, and to be possessed by the practical gynæcologist.



An instrument of proper length and size is to be used after a digital examination has been made to ascertain what the implement is to encounter. If the finger discover anything that should be inspected, a proper speculum may be selected, oiled and introduced. In winter the implement should be warmed. The lubricator is to be scented with an agreeable perfume, and the introduction conducted with delicacy, yet in a business-like way. The patient on a gynæcological table with feet in the stirrups is to have a sheet thrown over her limbs, and then slid beneath her clothing, her skirts sliding upwards as the sheet becomes a cover to her hips. The operator then with his left hand beneath the sheet, parts the labia, and with his right sends the end of the tube within the vagina, depressing the implement a little to keep its edge from scraping the meatus urinaris as it glides beneath the pubic arch. The sheet is now to be carried upward and beneath the rim of the implement in a way to screen the external genitals. The operator is expected to conduct the manœuvre so as to expose the woman as little as possible. A careless observance of the rule will be noted and remembered, if not remarked upon. The light falling into the speculum should be bright—either the light of day, a good lamp, or an electric illuminator. The speculum is to be manipulated expertly and adroitly to make the uterine cervix fall within the mouth of the implement. This manœuvre is easily executed in most instances, but not readily done by inexperienced manipulators, or where the conditions are not favorable. If the patient rest on her back in a gynæcological chair, or on a table with her feet and limbs spread in stirrups, the speculum can be manipulated with facility. When the instrument is doing satisfactory work the uterine cervix can be surveyed.

An old way to manage the introduction of a speculum was to tear a hole in the central seam of a sheet, and after putting the screen in place, the implement was directed through the opening and into the vulvar and vaginal aperture. The chief objection to this is that the procedure becomes rather bungling and awkward. A better way is to carry the sheet beneath the clothing and to the hips of the patient, then depress the screen between the thighs, and spread a napkin over the pubic region. The speculum is carried between the sheet and the napkin, and into the genital fissure, the manipulation to be executed by the sense of touch. The napkin covers the external genitalia, and is handy to use in wiping hands or instruments. It may be remarked in this connection that the tubular speculum may



be used while the patient is resting on her left side with the limbs snugly flexed. And this is the only attitude in which the univalve or Sim's speculum can be used, unless the hips of the patient rest on the edge of a table, as she lies upon her back.

A bivalve speculum is a valuable instrument for the gynæcologist, though with a variety of other kinds he can get along without it. The trivalve is rather complex and not easily manipulated; and the four valved affair is an abomination. It is heavy, complicated, and hard to manage. Trivalves made self-retaining are quite handy in certain explorations; and in executing operations when competent assistants are not at hand. In the closure of recto- and vesico-vaginal fistulas I commend the univalve of Sims; also in the use of tampons.

Tubular specula, with fenestra to illumine the walls of the vagina, are practically of not much account. It is obvious that it is easier to operate through a large speculum than a small one. I employ three sizes—a large tube, a medium grade and a comparatively small one. As the call for the use of the speculum is among women who have borne children, the large instrument is oftenest in use.

In a difficult exploration of the vesico-vaginal septum, it may be well to place the patient on her elbows and knees, a duck-billed speculum dragging the perinæum upward. In this attitude the abdominal viscera gravitate downward, air distends the vagina, and the deep parts are clearly exposed to view.

While exploring the fornices of the vagina and the uterine cervix, it is well to have several swabs at hand to clear the structures of mucus, and to wipe away any blood the flow of which may have been provoked by the manipulation.

The *os uteri* is the lower opening of the canal of the cervix, or the commencement of the uterine cavity. It is round in the virgin state but elliptical transversely after children have been born. Not infrequently the transverse fissure extends from one lateral border of the cervix to the other, converting the lower end of the neck into anterior and posterior lips, with more or less bulging of them. To freshen the lips and stitch them together constitute trachelorrhaphy, an operation devised by Emmet.

Bulging and indurated cervical lips are kept in a state of congestion, therefore they should be amputated. The wound will heal in a way to restore almost the virgin character of the uterine cervix, while the operation of trachelorrhaphy is often unsatisfactory.



Through the tubular speculum a pencil of wood curved at the point like the partially bent forefinger, can be carried into the canal of the cervix, and bear a caustic in the treatment of endocervicitis.

In the introduction of vaginal specula the manipulation should be conducted without haste, yet rather quickly withal. Patients are apt to complain unduly, and may ask to be released from the examination, or to have smaller instruments, but the operator pays little attention to the meaningless protests. A firm perinæum is to be *depressed* to allow a speculum to pass beneath the pubic arch. Undue rigidity of the perinaal structures would be an obstacle to the ready introduction of a speculum. Then, again, *vaginismus*, if there be any such state, must prove a hindrance to the introduction of a large speculum. An undue sensitiveness of the vaginal aperture is practically vaginismus, and may require cocaine locally, or a general anæsthetic to overcome the excessive sensibility. It is better that a patient be anæsthetized than that she undergo excruciating pain. However, a prudent medical man will not administer an anæsthetic to a woman unless a friend of his be present. Persons under the influence of anæsthesia may erroneously think they have suffered some wrong while unconscious.



## SECTION V.

## DISEASES OF THE EXTERNAL GENITALIA.

## TENTATIVE PROCEDURES.

In the treatment of female diseases we often have to prescribe without knowing all about a case. We listen to a brief description of subjective symptoms, and then place the patient under an adroit cross-examination, hoping to draw out some testimony not volunteered. And in the effort the physician may be misled by a witness as skillful at indirection as he may be in putting questions. The woman is suspicious that she may be telling more than is necessary to be told, foolishly thinking that an expert in gynæcology needs only to feel the pulse to ascertain everything worth knowing. She does not surmise that the medical adviser, with every opportunity to investigate her case, is often at a loss to account for the morbid phenomena presented.

It is customary to prescribe for subjective symptoms with the idea that the action of a medicine may help in a speculative diagnosis. At a second or third interview enough has been ascertained to assure the physician that only an examination can reveal the true nature of the ailment, and he then insists upon such a step.

## PRURITUS.

Itching of the genitals is one of the commonest of complaints in adult and elderly women; but in prescribing the doctor should be well satisfied that the pruritus does or does not come from parasites in the pubic hair. If such a cause—parasitic—be known or strongly suspected, the prescription may be as follows:

R Distillate hamamelis, f℥ iiss.  
Fowler's solution, f℥ ss. M.

This arsenical lotion used once a day on parts bearing hair will soon kill the annoying vermin. However, an egg a little late in hatching may be the cause of a return of the pest. Therefore, it is well to use the parasiticide occasionally for two or three months. There may be other agencies which are efficient, but



the one mentioned is free from objectionable features. Ointments are offensive as a rule. Juniper pomade is one of the least objectionable of cerates.

#### ECZEMA.

Tetter of the vulva is a common disorder, and not always easily cured. The external and internal labia become thickened, and otherwise modified, so that changes may be observed on inspection. The patient rubs the affected parts with her clothing, and provokes acrid exudations which intensify the itching. Occasionally a stinging sensation will occur as if nettles had poisoned the impressible region.

The disease attacks adults and elderly women, and sometimes continues to the end of life. Many patients are so modest and sensitive about the matter that they will endure the tortures of the damned without informing their medical attendant, unless the professional person be a doctress.

The cause of *pruritus pudendi* is as obscure as eczema upon other parts of the body. Sometimes it is local—at least can be cured with topical applications, yet as often it is the manifestation of a systemic taint. Sugar in the urine—diabetes—is occasionally the cause of pudendal itching. In a stubborn case of pruritus it would be wise to have the urine tested for a saccharine admixture. In several instances I have thus learned the cause of the pruritus, and have been the better able to administer relief. The spores of a saccharine fungus—*torula cerevisiæ*—may be the source of an aggravated pruritus, and so may be the hyphæ of other fungi. Patients of a diabetic diathesis are apt to be insomnolent, irritable, querulous and melancholic. The labia become dry, crusty and scaly with exudations, and if the exudates be removed by scratching, rubbing or bathing, they soon return. The tortures of such patients are unbearable and indescribable, driving the sufferer frantic.

*Treatment of Pruritus.*—From what has already been said, it may be inferred that pruritus of the external genitalia is not to be subdued with every salve or cerate that has gained some reputation as a “haus mittel.”

Carbolic acid has, in dilute forms, gained some reputation as a subduer of pruritus, yet it has not proved especially curative in my hands. As a parasiticide it has some potency. Lawson Tait advises a lotion of hyposulphite of soda, an ounce to a quart of water, on the ground that it arrests fermentation in brewers' products. He also recommends the use of opium inter-



nally to allay the itching as well as to check diabetes when it is present. I think the lotion to be useful, and the opium valuable, yet a patient annoyed to the point of distraction might readily glide into an incurable opium habit.

My course with eczematous patients is to prescribe juniper pomade, as a local application in ordinary cases, and the internal use of the "acid solution of iron." If the bowels be constipated, the use of cascara sagrada as a laxative proves beneficial; and should there be vaginitis, dilute injections of chloride of zinc prove curative.

In a sodden, fissured, and indurated state of the vulva, which does not yield to the remedies devised, the following cerate may be used:—

℞   Cosmoline,  $\bar{3}$  j.  
       Salicylic acid, grs. x.  
       Chloride zinc, grs. ij.   M.  
 S.   Use in small quantities once a day.

A stronger mixture is not irritating to the sound skin, yet might prove distressing to the inner labia. A hundred ointments have been devised to assuage the itching of eczematous vulva, but none, as far as I know, have proved as satisfactory as those agencies I have mentioned.

It has been stated by those in authority that some cases are too obstinate to be cured by any kind of treatment.

Certain spring waters, as those of Missisquoi, in the northern part of Vermont, have proved curative in a marked degree. Patients known to me have been benefited by a few weeks' sojourn at the springs. The Hot Springs of Arkansas have had a reputation for curing eczema, syphilis and other constitutional maladies, yet all reports from that source cannot be relied upon. However, in one case a man who suffered intensely with perinaal pruritus, got entirely cured by two visits to the Springs, the entire time of treatment covering not more than three months. A woman with *pruritus pudendi* went there by my advice, but was not permanently bettered.

Women near the later climacteric, with endo-cervicitis, are most apt to suffer from pudendal pruritus. An acrid discharge coming from the cavity of the womb or the uterine cervix, is likely to irritate the vulva, and to aggravate tetter of the labia, hence a cure of the pruritus would hinge upon judicious treatment of the uterus.



## WARTY EXCRESCENCES.

The labia minora are liable to vascular vegetations, to moles, and to genuine warts,—all of which may be the source of mephitic odors and acrid discharges., to say nothing of other inconveniences. Venereal warts are occasionally a sequence of gonorrhœa. However, they can not be a part of the venereal disease, but an accidental or incidental accompaniment of gonorrhœal disorder. They are propagated by impure sexual contacts among those who have neither gonorrhœa nor syphilis; hence venereal warts may constitute a disease *sui generis*.

Warts upon the internal labia are moist, and develop rapidly, their elongated tops becoming feathery. To excise them with scissors will do no good, the stumps sending out shoots with celerity. The vascular vegetations should be touched with a camel's hair brush or swab of lint dipped in a saturated solution of salicylic acid, resorcin, or chloride of zinc. I mention these as special or particular escharotics. Nitrate of silver does not cauterize deep enough to destroy the matrix. A tap-root extends far below the surface.

Mucous neoplasms or syphilitic gummata may invade the vulva and become sources of annoyance. If they appear during the secondary invasion of syphilis they may prove infectious. An indiscreet husband may impart the disease to an innocent wife, though a cleanly woman is not so likely to take the disease as one of slatternly habits.

I have generally prescribed powdered bismuth which has incorporated with it either borax or salicylic acid, five or six parts of the former to one of the latter. A solution of zinc is also curative. Allopaths almost exclusively employ calomel, and meet with success. Probably a hundred agencies will do as well.

The disease is alleged to depend upon a specific bacillus, bacterium, saprophyte, or microbe ; and that a feeble parasiticide will destroy the phytes or zymes upon which the morbid activity depends.

While it may be in accord with the scientific pretensions of the day to ascribe a *contagium vivum* as the cause of the pathologic state, it does not necessarily help to destroy the disease.

## EPITHELIOMA.

The external genitalia of the female are somewhat favorite sites for the fixation of epitheliomatous diseases. I have been



obliged to radically excise the clitoris to get rid of a malignant ulcer of the organ. I have also found a lupus ulcer feeding upon the meatus urinarius, and a rodent ulcer of the inferior commissure of the vulva. In fact, the inner labia, through their entire extent, are liable to epitheliomatous invasion.

The treatment is the same as that for cancerous ulcers upon the face. The following unguent is a favorite with me in epitheliomatous states. The prescription reads as follows:—

℞ Cosmoline, ℥j.  
Chloride zinc, grs. iv.  
Salicylic acid, xx.      M.

The paste may be made stronger or weaker to conform to the irritability of the parts treated.

In some instances it is best to excise a warty growth, and ply the escharotic paste to the wound while the healing process is going on.

Internally a drop of Fowler's solution of arsenic should be given every three hours every other day; and two drops of the "acid solution of iron" every three hours on the alternate day.

#### VULVITIS.

It is not uncommonly rare to find aphthous states of the vulva with an ulcerative condition of the mucous membrane confined to the genital aperture. Acute vulvitis follows parturition, the labia becoming so swollen and œdematous that the clitoris and urinary meatus could not be exposed without inflicting pain. I have seen a similar condition in young girls, with no apparent cause except an aphthous catarrh. Such inflammatory states might result in atresia, or obstructive cicatrizations. An infant might have hot water slopped into its lap, scalding the genitalia, and setting up ulcerative inflammation.

A verminous condition of the bowels has been followed by a transference of parasites from the anus to the vagina, and as a sequence an acute vulvitis with vaginitis. An acrid state of the urine could provoke an inflammatory and ulcerative state of the outer genitals. In the acute stage of gonorrhœa the labia are swollen, and tortured with pain, the delicate mucous surfaces being in a state of congestion and super-sensitiveness. Under such circumstances it would be impracticable to make a digital examination though the patient had undergone sexual intercourse. However, a prostitute might undergo exploratory examinations without enduring much suffering.



*Treatment.*—Acute vulvitis, whether specific or not, is to be treated with sedatives locally. An internal medicine is not necessarily needed, though a sedative, like gelseminum, might be of advantage. The labia are to be kept apart with lint smeared with vaseline. A solution of sugar of lead mixed with a watery extract of opium may be employed to treat the inflammation topically. Cocaine may, in solution, be utilized to allay pain and lessen irritation. Douches of warm water are cleansing and comforting, and rest is to be enjoined if not necessarily enforced by pain attending movements.

The bowels are to be kept in a laxative state, and evacuations provoked by enemata of water. A collection of fæces in the rectum holds the vaginal and vulvar veins in states of congestion. Hop fomentations to the vulva impart a sedative influence. A mucilage of starch with laudanum may be thrown into the rectum with a syringe, or cocoa butter suppositories containing opium or cocaine may be utilized.

A diphtheritic condition of the vulva and vagina of infants has been observed, and treated successfully, yet with dangerous phases in the disease, and troublesome complications. In one case the urethra was so much swollen that urination became impossible. I was averse to hurting the little patient, therefore I administered chloroform before using a catheter. After the implement had been used once, the patient regained power to urinate voluntarily. The disease ran its course without leaving the vagina in a state of atresia.

It should be remarked in this place, that vulvitis and vaginitis existing in young girls, may arouse a suspicion that the victims have been violated by some fiend who has a vile distemper. The suspicion has a foundation in the fact that the vulgar entertain the absurd notion that clap is cured by contact with a virgin. It is not impossible that this nonsensical idea has led to heinous crimes that have never been divulged. Medical men called to investigate suspected criminality with young females should be exceedingly careful that they, in their zeal, commit no blunders. There is a difference between contact and penetration. The stupid brute who has a gonorrhœa to be cured does not seek penetration but contact. It is to be borne in mind, too, that a little girl in imitation of her elders may wipe herself with napkins employed by parties having gonorrhœa. A young girl, under threats of punishment, may declare she had been violated by some boy or man whose name was put in her mouth,



she not understanding that any harm might come to any one through assent under intimidation.

The medical witness is not to be influenced by a clamor started by the thoughtless, but is to consider every circumstance bearing upon the case. Every purulent vulvar discharge is not gonorrhœa, and every sore on the genitals is not necessarily syphilitic. A widow with children married a man she did not love, or ceased to like, and used his step-daughter to trump up a crime on him, the girl consenting to the collusion. The step-daughter swore that her step-father had outraged her, and could show marks of violence on her person. The community were incensed and threatened to lynch the miscreant, yet the girl broke down on a searching cross-examination, confessing that her mother had snipped her genitals with scissors that the family physician might see by the blood and wounds that she had been violated!

#### ABSCESS OF THE VULVA.

A blocking of a duct of Bartholini's gland, or labial inflammation, may result in suppuration—in an abscess of the vulva. The inflammatory stage is exceedingly painful, and an unmarried female will undergo tortures before she will disclose the



Incising Abscess of Vulva.

nature of her ailment. She will poultice and foment the inflammatory lump for days with the view of making it "break" of itself, and often succeeds in accomplishing her purpose. However, it would be better if she consulted her physician, and had the pus evacuated through the incisive puncture of a bistoury. The operator generally selects a point of incision on the inside of the tumefied labium, and makes an aperture large



enough to insure free exit to the pent-up fluid. The discharge is apt to be rusty in color and highly offensive. The fluid has been confined so long that it has become putrid. Besides, all purulent collections in the perinæal region are mal-odorous. Since there are opportunities for young women to consult competent doctresses, there is no longer a valid excuse for them to conceal a developing labial abscess.

#### DROPSICAL PUDENDA.

*Edema of the labia* is a morbid complication arising from anæmic states of the body, and from tumors pressing on veins which take the blood from the pelvic region. In general dropsy the vulva becomes so distended with serous infiltrations, that positive distress attends the distension. Besides, urination is seriously impeded by tumefaction of the labia. In a case of pronounced infiltration, with inability to pass urine, I incised the labia to give exit to serous accumulations. In a few minutes quarts of serum had drained away, and I was enabled to use the catheter with ease. The punctures were made with the point of a bistoury, and the incisions remained open for days, allowing much fluid to escape. After the artificial apertures closed, I incised the distended parts again, repeating the operation several times. At length it became necessary to incise the skin below the knees to give exit to vast accumulations of serum in the cellular tissue. The drain from the legs relieved the distended vulva.

Women with unusually large internal labia suffer from chafing or irritable states of the vulva not incident to small nymphæ. Irritation causes swelling, and makes the labia press upon the thighs, one defect aggravating another. Antiseptic toilet powders, as bismuth and borax, are needed to sustain conditions of comfort; and walking in hot weather is to be avoided. Pledgets of lint or cotton-wool are to be utilized to prevent friction. Fleishy women are liable to chafing of the nates and adjacent parts, therefore they should be made acquainted with simple devices to escape avoidable discomfort.

Tait advises excision of congenitally enlarged labia minora, to remove incentives to masturbation. I question the propriety of such heroic measures, except in rare cases where insanity is threatened.

A condition of hypertrophy and sclerosis of the labia is not the rarest thing in the world. I have excised indurated and hypertrophied masses in two or three instances, and with satis-



factory results. In one case the enlargement was so excessive that it might with propriety be pronounced *elephantiasis*. The hemorrhage attending the removal was profuse, several arteries requiring ligation.

Nodular growths of cutaneous substances sometimes begin to develop in the labia of syphilitics, and extend to adjacent parts until the anus and vaginal aperture are practically closed. In a case of the kind I used internally Donovan's solution—two drops three times a day—for a year, and had the nodular structure anointed with juniper pomade daily during the course of treatment. At length a degree of cure was so far attained that further medication seemed needless.

#### LABIAL THROMBUS.

During pregnancy the labia, on one side or both, are apt to swell, and sometimes become distended with varicose veins, and the contents of a bursted blood-vessel—a thrombus resulting. Bruises from kicks are usually attended with thrombi; and if the tegumentary structure be torn or incised, dangerous hemorrhages occur. Masses of extravasated blood in the genitalia constitute hæmatoma, or hæmatocele.

#### HERNIA.

Women are afflicted with femoral hernia oftener than with the inguinal variety, yet the latter is quite frequent. Knuckles of intestine descend through the inguinal canal, and distend the labia on that side, distorting the organs, and somewhat interfering with their functions. Females are so careful to conceal diseases in and about the genitals that they rarely disclose a hernia, unless it become strangulated. However, the defect in women should be treated as it is in men. A retentive truss is to be worn, or an operation should be instituted with the object of a radical cure. Cases are recorded in which deluded practitioners have incised hernial tumors of the labia under the apprehension that they were cysts or purulent accumulations. A careful and experienced physician would not commit such an inexcusable blunder. A bubo is sometimes taken for a femoral hernia, and *vice versa*. A complex affair is when an ovary descends through the femoral or inguinal canal. This might be serious, should a state of strangulation occur in connection with the protrusion.

The malformations of hermaphroditism will be mentioned in another place. Rupture of the perinæum will also have a separate consideration.



The *Hymen* is occasionally the subject of surgical interference. I have twice been called upon to incise a complete membrane to liberate retained menstrual accumulations. One patient was twenty, and the suffering she had endured was terrible, especially at catamenial returns. She had taken any amount of sedatives, but only to obtain temporary relief. While the patient was under the influence of an anæsthetic, I incised the bulging hymen, and thereby set free more than a pint of fluid as thick as treacle, and mal-odorous in the extreme. There was no after trouble, but menstruations were normal. It was a wonder the degree of distension had not eventuated in rupture of the vagina or dilatation of the womb.

The other case of imperforate hymen was in a young woman, and the accumulations of menstrual *debris* were somewhat less. Neither case was followed by inflammatory troubles. Warm water douches were ordered to insure the riddance of septic material.

Rupture of the hymen at the first sexual onset is sometimes attended with considerable hemorrhage—so much that the services of a medical man are needed to allay fears. However, I never heard of a death from loss of blood.

The impression among non-professional parties is that the hymen represents virginity; and if there be no hemorrhagic show on the nuptial night, an ignorant and jealous husband may become suspicious of his wife's chastity. A more stupid error can hardly be conjectured. Sometimes no hymen exists, and in many instances the substance is so thin that it is accidentally lost in childhood. A perforated disk with ragged edges is the commonest representative hymeneal membrane. Only the physician can explain groundless suspicions.

*Clitoris*.—Excision of the clitoris for cancerous invasion, if executed thoroughly, is legitimate, and so is clitoridectomy, when, through hypertrophy, the organ is a source of annoyance. But to excise the clitoris, as is sometimes done, to cure a suspected masturbation, partakes of the barbarous. While I admit an exceptional case, after due consideration, might justify removal of an irritable or extremely sensitive part, the accidental touch of which might excite erotic desires, I would remind heroic operators that the seat of lasciviousness is not wholly confined to the genitals. To remove the testes of the adult is not to obliterate the sexual sense. To execute oophorectomy is to stop ovulation, and perhaps menstruation, but not necessarily all erotic sensibility. To amputate the penis of a



male would not subdue lascivious desires. It would accomplish as much in the way of restraint to execute circumcision.

The *meatus urinarius* is subject to the development of vascular vegetations, and to ulcers just within the meatus, as well as to the evolution of epitheliomatous disorders, but difficulties of the kind will be discussed in another place, under the head of *Urinary Diseases of the Female*.

The raspberry caruncle of the urinary meatus is cured by the use of a saturated solution of salicylic acid, and by applications of a copper crayon. The urethral caruncle may be painless, but is oftener acutely sensitive, making conjugal relations absolute torture.

*Perinæum*.—In another place *Rupture of the Perinæum* will be a topic for consideration in an operative sense. In this place there is little to be said.

*Fistulæ in ano* occasionally invade the recto-vaginal structures, and become extremely troublesome. An abscess may be the introduction to the fistulous state, especially in scrofulous or tuberculous patients. A woman with fistula in ano which burrows in front of the anus, may have the boring sinus reach the vagina.

*Uterine and vesical prolapsions* constitute special topics in perinæal surgery, and will receive due attention in another place. The operative procedures do not differ substantially from that instituted to close rupture of the perinæum. However, operators are apt to differ somewhat in their methods, yet without introducing new or novel principles. In other words, there are several ways of doing a given piece of work. Lawson Tait claims to have invented a method of closing a ruptured perinæum which involves new principles, but I fail to recognize anything more in his plan than an economical use of the structures to be transformed in the operation. Any surgeon expert in the utilization of tissue in plastic operations can do as much. However, I commend a consideration of Tait's scheme or plan, But, as all pathological states are not alike, so all operations are not to be conducted in the same way. To a certain extent, each case should vary to conform to existing conditions.



VAGINAL LESIONS.

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Vaginitis is one of the commonest diseases the gynæcologist is called upon to treat. Little girls having parasites in the intestinal canal are liable to vaginitis. In some instances intestinal worms get transferred from the rectum to the vagina. Then, again, aphthous states of the vulva extend into the urethra and vaginal canal, provoking stinging and smarting sensations, especially during micturition. In tuberculous states the vagina may become the seat of inflammatory action, with yellowish and offensive discharges. I have frequently been called upon by mothers to prescribe for the treatment of muco-purulent flows from the genitals of female children. As a rule I conclude that worms exist in the intestinal canal, or that an acrid state of the urine, may be the source of trouble. To correct the morbid states I prescribe santonine in tablets, sulphur in treacle, and sweet spirits of nitre, each medicine to be given one day out of three, alternation being observed in the administration of the drugs. Santonine is so insoluble that I prefer to give it in tablets, a fraction of a grain at a dose to be repeated three or four times on the day the medicine is given. From five to ten grains of sulphur, mixed with molasses, may be administered twice on the day assigned to the drug's use; and a quarter teaspoonful of sweet spirits of nitre is to be given in water four times on the third day of the round. In place of nitre five drops of a tincture of *pinus canadensis* may be prescribed, or as many drops of turpentine on sugar. Spring waters which contain lithia are to be commended as drink, especially if the seat of irritation be in the urinary tracts. The diet of young subjects should be simple and nutritious, and free from confections.

Young women are subject to leucorrhœa and vaginal erethism at the period of catamenial activity. This periodical disturbance need not necessarily come under a doctor's care, yet may in aggravated states of pain and congestion. The difficulty may be complicated with dysmenorrhœa. A few doses of *gelsemium*, or of chloral hydrate, will generally correct the genito-urinary disturbance. Salol has proved beneficial in such morbid states.

Sexual intemperance on the part of the newly married—an abuse of the honey-moon—is not an uncommon cause of vaginitis. The sufferer, half conscious of the cause, and ashamed to



make known her distress, becomes the victim of indiscretion. A long continued course of over-indulgence in the marital relation, will eventually bring the sufferer under professional care; when wholesome restraint will be enjoined. If there be no venereal disease combined with the lesion, recovery will soon be enjoyed.

*Atresia vaginæ* has already been instanced. It is a sequence of a high grade of inflammation at some point in the vaginal canal. A cicatricial state draws the tube into a pucker, and brings, in the morbid contraction, the bladder and the rectum into intimate connection, so that an inexperienced operator, in endeavors to overcome the vaginal occlusion, might make a vicarious opening into the rectum or bladder, establishing a troublesome fistula. The cicatricial impediment may be like a contracted ring, or extend the distance of an inch or more.



Vaginal Stricture of a cicatricial nature.

In one case coming under treatment, the scar-like induration reached from the ostium vaginæ to the os uteri; and to open a passage through this inelastic structure was the work of hours; a finger in the rectum and a catheter in the bladder guiding the point of the knife as it made nicks in the hardened interspace. At length a passage was made, and dilators were then daily employed to prevent a rejoining of the divided tissues. Although the operative procedure was a success, the vaginal canal being restored to normal proportions, I am inclined to believe a strong tendency to re-union would for a long time exist.

To set free accumulated menstrual *debris* is one of the reasons why the barrier should be overcome, and the canal kept pervious. Catamenial accumulations might lead to rupture of the vagina, or to over-distension of the uterus, or to fatal inflammations of one organ or another. The prospective complications are grave in character.



If, in an operation to overcome atresia of the vagina, an aperture be made into the rectum or bladder, the fistula might be let alone till the vaginal canal was established, and then it could be closed surgically, if still existing. An aperture into the rectum might close itself.

Although diagrams usually represent the vagina as an open tube, frozen sections of the pelvis demonstrate that the canal is normally in a state of collapse—the walls resting against each other like layers of wet paper. To understand this fact is to see why the parietes of a highly inflamed vagina might adhere during reparative processes. When a woman goes into a bath, no water enters the vagina, unless she get into a particular attitude, the hips being elevated so that gravity lets the abdominal and pelvic viscera forward. If a female patient be placed with the chest lower than the hips, the trunk being in a prone position, air rushes into the vagina, and partially distends the genital passage. This attitude is sometimes necessary to make clear a difficult diagnosis.

The ostium vaginæ of young women is much smaller than it is, in females who have born children; therefore specula of various sizes should be at hand when an examination is to be made. A medium sized tubular speculum and a Sim's duck-billed dilator will do for ordinary cases, and more complex affairs for normal states. I do not admire bivalve and trivalve instruments on account of their weight, hinges, and other objectionable features. The inexperienced, yet would-be gynæcologist, is apt to handicap himself with a stunning display of implements and instruments. On the other hand, the stingy would-be gynæcologist will content himself with too few aids in diagnostic procedures.

It is rare that a virgin should be subjected to a vaginal examination. She may have an imperforate hymen, vaginal atresia, recto- or vesico-vaginal tumors, fistulas, or pelvic hæmatocèles that need investigation, yet a digital exploration is all that may be demanded. However, a visual inspection would be proper when a venereal disease is suspected to be present. If the labia be tumefied, morbidly sensitive, as well as bedaubed with pus or muco-purulency, and smarting attends micturition, the signs are decidedly gonorrhœal; and the physician is justified in pressing inquiries in regard to the origin of the specific inflammation. While a medical man may assume to know when a venereal disease exists, to draw out a confession, he is not always positive in regard to the matter. In a case of doubt



he should treat the patient as if she had a specific disease. For ordinary vaginitis, injections of water are comforting and wholesome ; and the fluid injected may be medicated with an astringent—with the salts of lead or zinc if gonorrhœa be suspected. In place of astringent washes a medicated unguent may be employed. After an ounce of vaseline has ten grains of sulphate of zinc incorporated with it, the patient is to wrap a fore-finger with soft flannel, bedaub it with the ointment, and then besmear the mucous lining of the vagina. The anointing may be repeated twice a day. Internally may be administered laxative doses of sulphate of magnesia. The medication is comforting and curative, though it may not be known to a day or week when the disease ceases to be infectious. A woman's genitalia are always moist, hence it can not be determined to a certainty when she be free of disease.

The Dogberrys of St. Louis once passed a law which called for the registration and professional examination of all prostitutes within the city's jurisdiction; and no "woman of the town" was allowed to ply her trade unless she could exhibit a clean certificate of health. Houses of prostitution were visited by medical experts(?) who went through the farce of examining the inmates, and giving the date of the same and the venereal condition of the party holding the certificate, the courtesans paying the examination fee of two or more dollars. This constituted a lucrative source of revenue for young politicians who secured appointments under the ordinance; but the entire scheme was unjust and demoralizing; and became illegal as soon as a new political party gained the ascendancy.

If women ever acquire power to enact laws, the first should be to compel men to carry a "clean bill of health" with them when they applied for admission to a house of prostitution; and if the enactment was rigidly enforced, lewd women could be kept in a healthful state.

If a woman have no syphilitic eruptions upon her body, no sores on the lips, no fissure in the sides of the tongue, no ulcers in the fauces, no falling of the hair, no enlargement of the inguinal glands, no scars or abrasions of the vulva, no chancre of the *os tinæ*, she is probably free of constitutional syphilis. However, she may have a systemic virus in her that has not had time to develop into local phenomena. It requires from thirty to sixty days for a single chancre to manifest itself on the genitals after contamination.



Vaginitis, and minute vascular excrescences or follicular vegetations in patches, and which are not venereal in origin, are to be encountered; and the morbid state is obstinate. The excrescences are sensitive, and secrete purulency. A patient with this supersensitiveness of the vaginal passage resists digital and all other explorations. She will not permit marital relations, and is said to be affected with "vaginismus," if there be such a thing, which I doubt. I admit there to be a constrictor vaginae muscle; but in women who have borne children it has little contractility. However, if the vagina be acutely sensitive and inflamed, copulation is unbearable. By reflex sensibilities a general convulsive state supervenes, with a possible spasm of the sphincter vaginae muscles, whether they be strong or weak. In a digital examination of young negro women a contraction of the muscles named may be felt; and it is known that in the conjugation of canines a vaginal constrictor muscle prolongs connection,—the male, through the distension of an erectile bulb in the penis is held imprisoned.

An unguent embracing cocaine and salicylic acid, five grains of each to an ounce of vaseline, is to be used in the supersensitive and inflamed vagina twice or thrice a day till the abnormal state subsides, and then the alleged "vaginismus" will be overcome.

Elderly women are apt to have *senile vaginitis*, with pruritus. The cause can not always be ascertained, though cancer of the womb may be suspected. Injections of water may cure the disease, or lavages of dilute-solutions of borax. Constipation, eczema, and catarrh of the bladder may contribute to the infirmity. Sometimes an acrid discharge exudes from the uterine cavity; and the inflamed endometrium has to be douched through a piston syringe having a long nozzle. Elderly women will sometimes wear pessaries till calculous matter renders the exterior of the implement rough and otherwise disagreeable. The cure for such a vaginitis is to remove the cause. I have taken away pessaries that had been worn for years without removal.

*Recto-* and *cysto-celes*, together with descent of the vagina, are common infirmities, and difficult to cure. Vaginocoele with uterine prolapsion is common, and will be discussed fully under the head of *procidentia uteri*. The womb falls because the vagina is abnormally relaxed; hence to treat one organ and neglect the other would be to commit a stupid blunder. The cause of flabby states of the vagina and supports of the pelvic



viscera are not always plain. Constipation is certainly one of the contingencies leading to prolapsion of the uterus and vagina; and lack of tonicity in the walls of the bladder may be the cause of cystocele. Abnormal relaxation of the utero-pelvic and utero-cystic ligaments permits protrusion of the womb and bladder. But, to cure these morbid complications is as difficult as it is to learn their causes. As a rule they have to be managed on general principles, the use of pessaries relieving some cases. The employment of cotton flannel wads, pushed through a short tubular speculum, has been experimentally ascertained to be comforting. A large disc pessary, blown in glass, is worthy of consideration. In very bad cases surgical closure of the vulvar aperture—genital fissure—is alone curative.

Young women of libidinous proclivities, in a half crazy state of mind, will introduce foreign bodies into the vagina. I once removed the fragments of a cologne bottle that had broken while in the vaginal cavity; and I have read the reports of similar experiences. One such accident occurred as follows; a daft girl introduced into the vagina the handle of a lather brush; and after it got beyond her reach she cried for relief, the spreading bristles preventing an easy escape of the implement.

*Vesico-vaginal and recto-vaginal fistulæ* constitute topics of a strictly surgical nature to be depicted in some other place. At present it has been my object to treat subjects which are semi-surgical or partially manipulative and therapeutic. I shall discuss urethro-vaginal fistulæ in connection with urinary lesions. Accidental apertures in the urethra are not uncommon, and are to be treated surgically. They are difficult to cure unless a temporary drainage of the bladder be established. The inexperienced operator may think a urethral fistula is easy to freshen and close, but after several failures he is wiser and less pretentious.



## SECTION VI.

MENSTRUATION.

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After puberty a girl ovulates once a month; and the attending phenomena are congestion of the genitalia and a sanguineous flow from the vulva. The blood comes from the endometrium and the linings of the Fallopian tubes. The periods last four or five days, and are preceded and accompanied by pains in the loins and pelvic regions, and by languid sensations. Menstruation continues till the woman be about forty-five years old, unless interrupted by pregnancy or disease. The catamenial discharge varies in quantity,—some women lose very little blood, while others find it necessary to change napkins several times a day for a week. It is not uncommon for a woman to say that she wastes so little that she does not have to employ a napkin. As a rule the hemorrhagic loss is considerable, and physically depressing.

Why an ovulating woman should bleed is conjectural, unless the flow be the result of congestion—a physiological hyperæmia,—the blood being forced through the capillaries. To say that the flow is cleansing is not logical; or that it is in any respect preparatory to conception. Some of the inferior animals have an œstrual discharge, especially quadrumana. But, Mr. Lawson Tait contends that menstruation has nothing to do with ovulation, or that the menstrual discharge is associated with ovulation; and cites cases in his surgical practice to show from ovarian signs, that ovulation occurs independently of menstruation, and *vice versa*. While his testimony is quite at variance with prevailing opinions upon the subject, it is entitled to a hearing. However, his theory that a woman can become pregnant at any time between the menses, at one time as well as another, is not sustained by facts. Every medical practitioner of experience knows that a woman conceives the most readily just after a cessation of the menstrual flow; and that she may become pregnant just before a catamenial onset. The record of married women is that aptitude for conception exists for several days—ten to fifteen—after the hemorrhagic discharge



is over, the tendency to become pregnant lessening after the tenth day, and almost absolute immunity existing from the fifteenth day to a return of susceptibility, which begins a day or two before a coming "show," there being an interval of ten days during which pregnancy is not likely to occur. The period of exemption is known to the unprofessional, and is utilized to avoid conception by those who do not desire an increase of progeny. The rule, like most others in the animal economy, may have exceptions, yet they are quite rare.

Mr. Tait, it is well understood, is fond of differing from the generality of the medical profession, and makes much of the few who agree with him. He contends that menstruation is not comparable with the œstrus of the inferior animals, saying that a woman has no desire for sexual congress during the period of the catamenial flow. That she is entirely free from erotic sensations while the flow is on may reasonably be doubted, but a sense of propriety will not permit her to submit to an embrace at that time,—she is practically "unclean," and is governed by the fact. But at the close of the menstrual period erotic desires are the most impulsive.

When the œstrual season begins with most animals the male is not admitted at once, but several days elapse before a congress is permitted. The female of canine stock is in heat three or four days before conjugation with the male is allowable.

The statement that Jewish women are "unclean" for eight days after menstruation, and that the Rabbinical precepts compel restraint five days longer, may be discounted in practice. The argument of Mr. Tait is not strengthened by the quotation he makes from Israelitish customs. A rigid adherence to Rabbinical laws would have told upon the Jewish race. As far as I have been able to gather facts from Jewess patrons, they observe the rules practiced by Christian women in regard to menstrual "uncleanness," and no others, except in rare instances. An intelligent Jewess once said to me, "I am unclean while I am unwell, and no longer." However, I am ready to admit that the Mosaic rule still exercises some restraint over the more superstitious of Israelitish women. But the eight day restraint need not appreciably lessen the size of Jewish families. If the aptitude for conception last ten days after menstruation begins or even is over, there is time enough for impregnation.

The theory among most physiologists is that an unimpregnated ovum passes into the uterus within twelve or fourteen days after the cessation of the menstrual flow, and is lost. Pos-



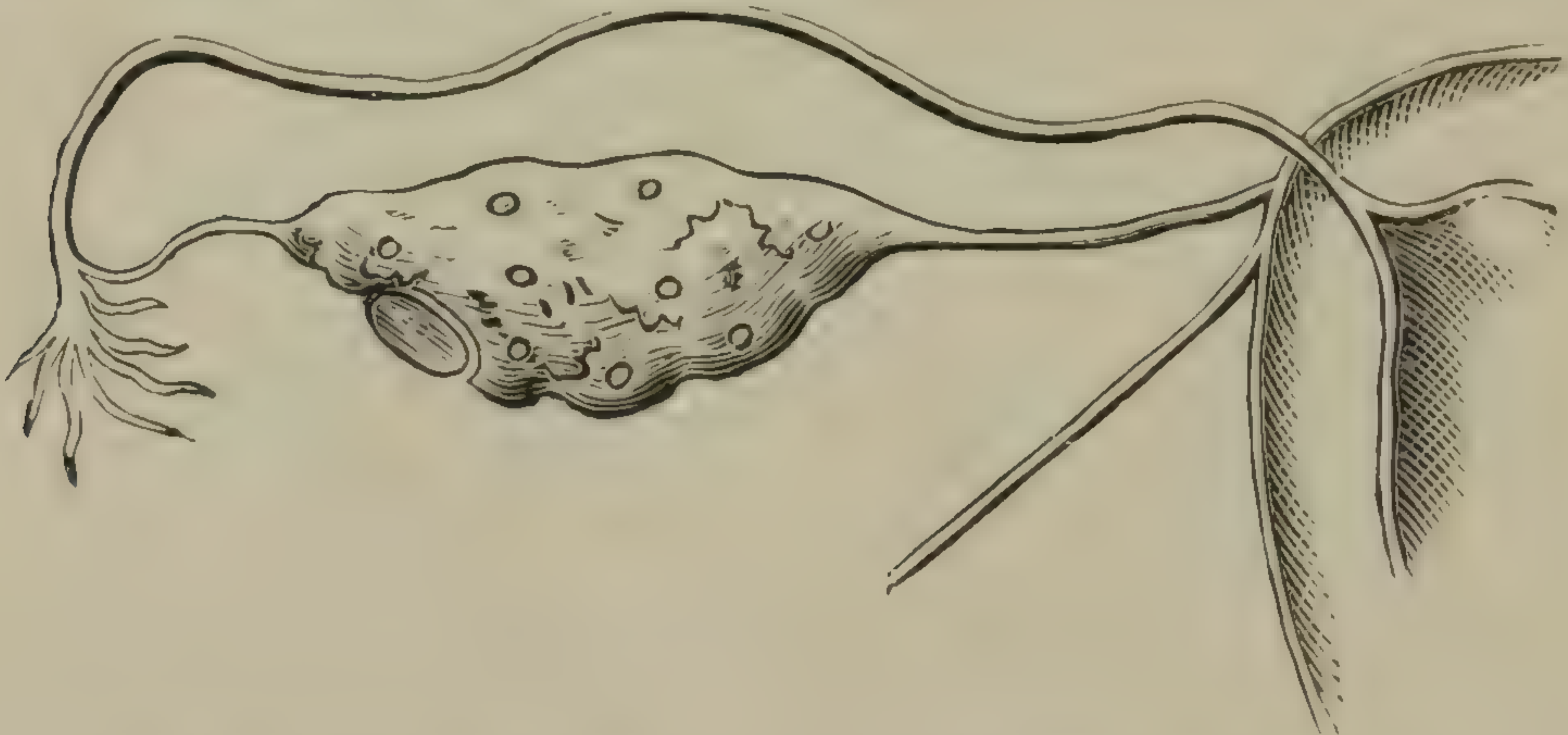
sibly it may drop into the cavity of the peritoneum, and there be out of the reach of fertilization. It is presumed that an erotic impulse may be provocative of action on the part of the salpingian fimbriæ, the ripened ovum being grasped and forwarded to the cavity of the womb. Should sexual intercourse occur while the mature ovum is in the Fallopian tube, the egg is there fertilized; and if it become fixed there, ectopic gestation is the result. Tubal pregnancy is the commonest of extra-uterine gestations. In just what way a peritoneal pregnancy takes place is not clearly understood. Probably conception occurs while the fertilized ovum is barely within the grasp of the Fallopian fimbriæ, where the junction of mucous and serous membranes occurs.

While the subject of menstruation does not literally come within the province of a work on *Operative Gynæcology*, the contingencies of the important function—the disorders of the energy—assume surgical importance. Without an intimate acquaintance with ovulation and conception, an ectopic pregnancy could not be fully understood and skillfully managed. In fact, gynæcological surgery has demonstrated many obscure points the physiologist had no means of ascertaining. It has been proven over and over again that a woman whose ovaries have been removed, may menstruate as regularly as before, though, of course, she could not ovulate. Mr. Tait announces that a woman who had been his patient, whose ovaries, Fallopian tubes, and four-fifths of the uterus had been excised, still menstruated. This shows that the catamenial *nisus* depends upon a periodical energy having its origin in the nervous system, and not upon the presence of organs or the elaboration of ova.

A theory of Lawson Tait is, that ovulation occurs while pregnancy exists, and during lactation; and that the surface of the ovary does not exhibit a corpus luteum corresponding to catamenial epochs. The experienced observer, who handles the ovaries of living women almost every day, does not find the corpora lutea of quite recent ovulations; and reflects upon the pretensions of those physiologists who claim that they can distinguish between the corpus luteum of menstruation and that of pregnancy. I am glad here to recognize so great an authority upon a point I have discussed on several occasions. It is a travesty to read in the newspaper or in a medical journal, that the coroner or medical expert, after examining the dead body of a young woman, declared on the appearance of a well



developed corpus luteum, that pregnancy existed. If the uterus be absent, it would be questionable whether a jury of medical experts could determine whether a two or three months gestation had existed or not. But, from observation, I affirm that ordinarily the ovary which has recently ripened an ovum, shows the spot where the egg matured—the corpus luteum of the latest menstruation. There is a vascular disc or crypt which is readily observable. In a majority of laparotomy operations



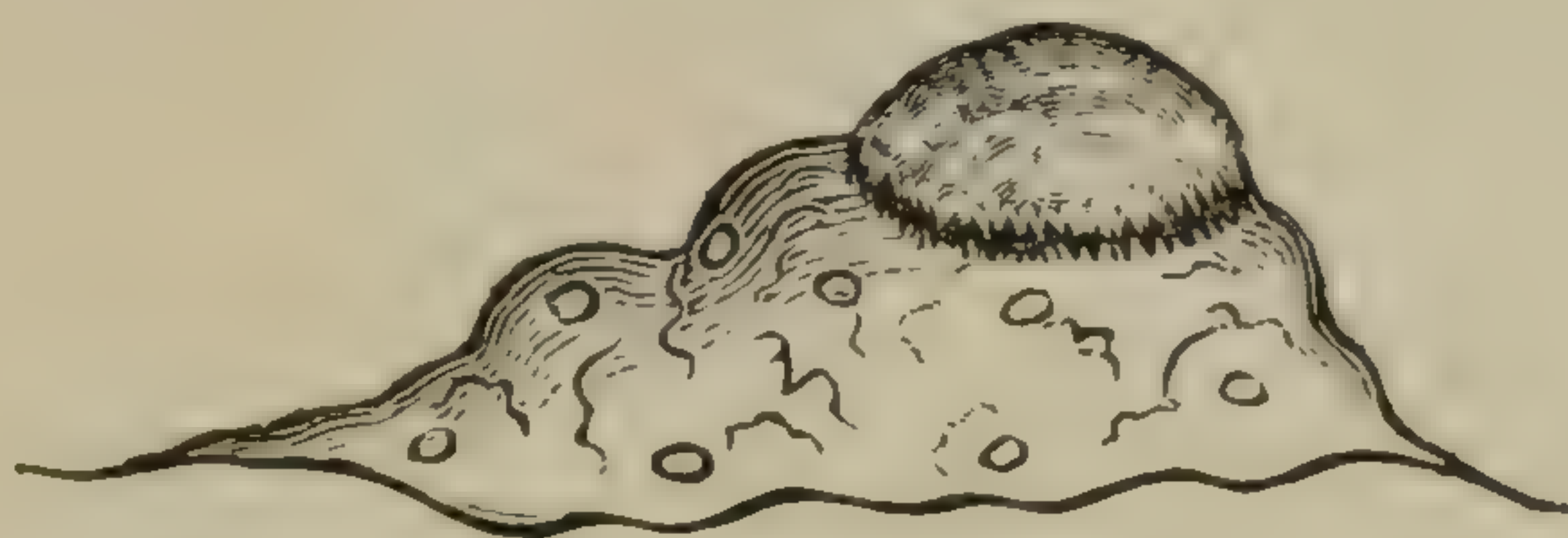
The oval disc on the lower border of the ovary represents the corpus luteum of menstruation.

upon the female, there is an opportunity to examine the ovaries; and while observing the scars which have followed ovulations, I frequently call attention to a dark pinkish or yellowish spot on one of the ovaries where presumably the last mature egg was developed. If the laparotomy take place soon after a menstrual "change," the more pronounced is the crypt denominated corpus luteum. In making autopsies I have not found that the ovaries of women dying of peritonitis following parturitions and abortions that pregnancy could be determined by the size and vascular appearance of corpora lutea. However, the vascular state of the uterus and appendages under such altered circumstances, is calculated to make a corpus luteum appear prominent, and even a little larger than a menstrual corpus luteum in the living subject. However, a definite distinction between the corpora lutea of menstruation and pregnancy can not be drawn.

The endometrium of a menstruating woman develops an exudate which is decidual, if pregnancy be not a contingency or sequence. The ovum, if not fertilized, remains in contact with the decidual exudate of menstruation for several days, and then both become disintegrated, and pass away. In some instances an observing woman can determine when the ovum leaves the uterine cavity. The decidual exudate of menstrea-



tion is modified by epithelium which, when detached from the fundus of the womb without laceration, exhibits a cast of the utricular glands. A physician showed me a well developed specimen his wife preserved for inspection. By the aid of manipulating needles, and lenses, we were able to discover upon the semi-membranous exudate the mammillated casts of the uterine glands or secretory follicles. The epithelial exudation does not occur till the menstrual flow has ceased, and the ovum is mature and ready to be fertilized. If a sexual congress occur, and the ovum be fructified, the exudate of menstruation becomes the decidua of conception and pregnancy.



The oval disc on the top of the ovary represents the corpus luteum of pregnancy.

Inasmuch as the ovary is generally supposed to be the seat of a functional activity which evolves ova periodically, it is not the functional source of menstruation. Ovulation occurs in the substance of the ovarian body, but the impulse arises in the ganglionic plexus of nerves which presides over the uterine functions. As has been said, the ovaries may be removed, yet menstruation continue—ovulation may cease, yet catamenial periods recur. This is at variance with physiological and obstetrical teachings, yet the operative gynæcologist has demonstrated as much. The periodical activity is seated in neural centres which influence visceral energies. To look for the primitive incentive would be to inquire into the origin of biological forces. The organic world is moved by the energies of the reproductive impulse. In the lowest cryptogams may be observed the activities bent on reproduction. Even in organisms which combine dual sexuality, the inclination to multiply is apparent. In the lower orders of animality it is not easy to see how an hermaphrodite creature can be selective sexually, inasmuch as spores and germs are embodied in a single individual. In elevated



Decidual exudate of menstruation or of early pregnancy.



orders of animals the sexes are separated, germs being a female possession, and sperm a masculine product. In the tropics an annual or semi-annual drouth has something to do with reproductive energies; and in temperate regions a cold season intervenes to modify the sexual instincts. Domestic animals which are housed may be made to breed at all times in the year, yet the wild tendency is to reproduce when the young are most likely to survive. The wild deer, for instance, has the œstrus, not so the fawn will be dropped in winter, but so it shall be born in spring, when the weather is favorable for its growth. If it were not for this provision of nature the œstrus might occur in the spring, and the product of conception would be calved at the beginning of freezing weather in autumn. The sun's rays have been cited as the regulator of such matters, but how solar heat can influence an œstrus so that young shall be brought forth in the spring, is not an easy problem to solve. Bears, wolves, foxes, and most wild animals of the country, bring forth progeny in the spring, whatever be the period of utero-gestation. The œstrus of foxes is in December, and the young are born in April, four months being the gestative period. Some geese brought to the United States from Australia where the seasons are the reverse of what exist here, nested in autumn instead of spring; but after the lapse of a year or two, the time of ovulation changed to the common order of things.

It is rare for domestic fowls to ovulate so as to hatch in winter, and wild birds invariably ovulate and rear broods in spring. Wild duck which fly north as far as Behring's sea, nest so that the ducklings of thousands of broods come forth on the same day. Salmon and shad ascend rivers in search of spawning grounds at a given time of year, latitude having much to do with dates. The Indians know to a day when salmon will reach Kettle Falls on the Columbia river. Shad are caught in the rivers of Florida as early as February; in the Savannah during March; in the Potomac in April; in the Connecticut in May; and in the St. Lawrence in June, the season traveling northward at the rate of eleven miles a day. By this it would seem that the sun has more to do with the ovulation of animals than we might at first suppose.

In regard to ovulation in women, I venture to say that Mr. Tait has placed his views in opposition to those of most physiologists. He says: "Ovulation goes on before puberty and after the climacteric freely. I am persuaded that ovulation is wholly independent of menstruation, and *vice versa*." The intimation



is that ovulation takes place during pregnancy and lactation, though the contrary is the general rule. If a woman nurse a child over a year, ovulation returns and she is liable to become pregnant again. There is no evidence that the female deer ovulates except at the time œstrus manifests itself. If there be no œstrus in women at the time of ovulation and menstruation, then she has in that respect severed all relationship with the animal world in general.

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### AMENORRHŒA.

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It is possible that ovulation takes place during childhood, but is not made manifest till advanced girlhood. Menstruation proper does not occur until there is a hemorrhagic "show" from the genitalia. A real catamenial discharge may burst forth all at once, and continue uninterruptedly from month to month, or it may appear after several unsuccessful efforts, and then not continue regularly—a lapse intervening from time to time, a suppression depending upon some one of various causes. Menstrual suppression in a school girl generally depends upon faulty nutrition, yet may hinge upon disease, and become a source of anxiety on the part of mother and physician; for the suppression of the function intensifies debility. A girl overworked, and under-fed, and worried with uncongenial surroundings, may have a suspension of her "turns," and become the victim of stubborn amenorrhœa.

If a young woman have never menstruated, and her general contour indicate a mature state of body, the cause of amenorrhœa is likely to be congenital, an imperforate hymen existing, or some important organ is wanting—possibly vagina, uterus, or ovaries. At the same time, the fact must not be overlooked that pregnancy is usually followed by suppression of the menses. A young woman of my acquaintance who had never menstruated, and who had been under treatment for the important defect, entered the nuptial state, and became pregnant. She had ovulated from month to month, but never exhibited a hemorrhagic "show." After she had given birth to her child, and suckled it a year, she, for the first time, menstruated. Ever afterwards she was like other women.

The health of a young woman who has menstruated several times, and then ceases to meet with her "changes," becomes a fit subject for professional attention. If the mother has been



the rounds of domestic medication, and the family physician has tried emmenagogues of various kinds, yet no desirable results have been attained, it is wise and proper to insist upon a thorough examination of the pelvic viscera; there may be atresia vaginæ, flexion of the uterus, or other mechanical obstruction to a catamenial discharge. Possibly there is occlusion of the canal of the uterine cervix, or stenosis through the development of a tumor.

An anæmic state of the body, with ashy pale lips, ringing in the ears, and palpitation of the heart, may be contemplated with apprehension of a more or less grave lesion in the way of menstruation. Incipient phthisis results in amenorrhœa sooner or later, yet the lung trouble is too pronounced to be overlooked as a cause of catamenial suppression. Hard study in school, mental worry, insomnia, dyspepsia, constipation, and an insufficient diet, contribute to temporary suspension of menstrual returns, yet the causes of the intervention are generally remediable. A young woman in whose behalf I was called in consultation, had been accused of being pregnant; she had not menstruated for several months, and an abdominal protrusion quite resembled that of advanced pregnancy. The family physician had intimated to me the possible contingency, yet did not believe such to be the cause of the suspended menstruation and the abdominal enlargement. The patient was tall and lean and suffered both physically and mentally. I diagnosticated the presence of an ovarian cyst, and advised an early laparotomy; and while time was taken to prepare for the operation the tumor burst, the patient dying in a few minutes after the accident. An autopsy revealed the presence of two gallons of colorless fluid in the peritoneal cavity, and a lacerated parovarian sac which had been developing the limpid fluid. The walls of the cyst were as thin as paper. The case is cited to show the critical course a medical man has to pursue when an unmarried woman has suppressed menstruation and an abdominal enlargement which simulates that of pregnancy. He is to suppress a hint of utero-gestation until he has ascertained that pregnancy is highly probable, or demonstrable. Rhythmic contractions of the uterus felt by the palm, foetal movements, and even stethoscopic sounds of the foetal heart, are all deceptive and misleading. Intestinal movements and gurglings, either felt or heard, are confusing and even confounding. A pulpy condition of the *os tincæ* indicates pregnancy, yet a digital examination in ordinary cases of amenorrhœa is not justifiable unless neces-



sities call for such an investigation. In a case of alleged ovarian cystoma I was called to execute laparotomy. I questioned the attending physician very closely in regard to the possibilities of pregnancy; and he declared such a condition highly improbable on the ground that the spinster had always conducted herself with the utmost propriety. While the patient was on the operating table and undergoing anæsthesia, I listened for sounds of a foetal heart, but heard nothing except intestinal rumblings; but upon digitally exploring the *os tincæ* I found evidence of pregnancy; and after the patient was fully anæsthetized I could outline, through the walls of the belly, the prominent parts—head, shoulder, and hip—of a seven or eight months child in the uterus. Under an invented pretension I postponed the contemplated operation, and advised preparatory medication. Within six weeks I heard of the patient's safe delivery. I had my suspicions aroused at the examination by the woman's appeal for an operation at that time, and at no subsequent period. She hoped in some way she should escape the disgrace of illegitimacy.

It may be remarked in this connection, that a woman may arrive at her second climacteric at thirty-five, and become frightened at her state of amenorrhœa. I have encountered cases of this kind; but as the patients were married, there was no occasion for alarm. If the lack of menstruation depended upon pregnancy, the suspension was legitimate, and not to be feared; and if it were from atrophy of the ovaries, or inactivity of the neural plexuses which are the seat of the menstrual *nisus*, there was no call for active therapeutic or surgical measures. In other words, it was safe to wait for physiological and pathological manifestations. It is foolish to ply emmenagogues until there be a reasonable indication for them. In the event of retarded puberty an emmenagogue action may not be needed; but an altered or modified course of living. If a young woman be behind hand in her growth, she has only to wait for nature to catch up. It is not very rare for a rachitic young woman to reach the twentieth year before menstruation comes on.

It has been questioned whether stenosis of the uterine cervix ever is a cause of amenorrhœa, but I know experimentally that such a condition occasionally exists. Miss R., of Kentucky, suffered from a "trouble of the womb," as her physician wrote, especially at each catamenial return; but "no show worth speaking of" ever occurred. The patient's mother brought the girl to me for examination. Her hypogastrium was enlarged and



keenly sensitive. The fact that each menstrual effort could be distinctly made out, from sensations, as to time and continuance, led me to suspect "cervical stenosis," if such a state might be; and I could not see why not. Through a digital examination I found that the uterus hung low, and that it was large and heavy, as well as sensitive. With only the mother for an assistant, I administered chloroform; and after a half hour's trying, sent a steel sound through the canal of the cervix,—knowing by the movements of the implement that it was in a cavity of some size, I withdrew it, and sent the closed blades of an Ellinger dilator within the canal. Having dilated the passage as much as the instrument could be made to stretch the walls of the canal; I carried the closed points of a glove-finger stretcher where the dilator had been, and, with the wider acting implement, forced the caliber of the passage open enough to give egress to pent-up menstrual fluids. The flow was copious, and the fluid as thick as treacle. The discharge continued for several days, and was mal-odorous in the extreme. At the end of ten days the patient and mother left the hotel, and I have not seen them since. However, the family physician has written that there has been no trouble with the menses since the girl's return home. This was a case of genuine "cervical stenosis," and was congenital, and not acquired through the blundering use of caustics, as is sometimes the case with married women who are treated for "ulceration of the os," till there be cicatricial closure of the mouth of the womb.

In a case of imperforate hymen the monthly accumulations of menstrual *debris* distend the vagina to its utmost limits, and give great distress, especially toward the end of a catamenial *molimen*. Amenorrhœa in such cases is not from lack of energy in the uterine or ovarian plexuses of nerves, but is wholly from mechanical causes, therefore the administration of emmenagogues or ecbolics would be at least useless. The innocent patient has to suffer from the pressure of the catamenial accumulations, and from cruel insinuations that she may be pregnant. Altogether the worry must be unbearable—the victim becomes insomnolent, dyspeptic, nervous and grievously tormented. In occasional instances something like labor throes are provoked by vaginal and uterine distension.

As has been suggested *atresia vaginæ* acts as an occluding agency to establish amenorrhœa; though there will be a monthly return of the catamenial *nisus*. And, as with imperforate hymen and



“cervical stenosis,” there must be surgical interference before the obstructing medium is removed.

Tumors, abscesses, hæmatoceles, and congenital defects, may prove mechanical obstructions to menstrual discharges,—may be the cause of amenorrhœa. In a case of ectopic gestation, with a subsequent discharge of foetal *debris* through the rectum, a remaining fistula conducted the menstrual blood into combination with the fæces. The case was a singular one; and explained theoretically that the ulcerative action had connected the walls of the uterus with the rectum. Possibly the pregnancy was not wholly extra-uterine, but *mural*, the uterine parietes becoming involved in the foetal evolution, death, decay, and fortuitous discharge.

There is such a thing as *vicarious menstruation*, the flux occurring from a mucous surface, as from the lining of the bladder or rectum; and the hemorrhagic waste may come from the bronchial tubes. Such a perversion of the catamenial flow is not common, though frequently suspected. An intelligent woman once assured me that she menstruated through hemorrhoidal tumors, the flux being monthly. She may have truthfully expressed her view of the matter, yet be laboring under a delusion. A spurious or vicarious menstruation is simply possible.

An artful woman sometimes has a rich man in her toils; and pretends to have suppression of the menses to make him believe she is pregnant. Her aim is to get a settlement of property to support the issue of illicit cohabitation or to aid her for a season while hiding shame. The trick is often played, and a medical certificate is not infrequently—a shame on professional honor—obtained to forward the impudent fraud. A physiological amenorrhœa—that of pregnancy—may be claimed to enforce a matrimonial engagement. In the practice of deceptions of the kind the woman has the advantage.

Occasionally a woman deceives herself, honestly believing that she is pregnant when in fact the menopause is working upon her. Conscious of the possibility of the pregnant state, and worried thereby, she may lose her menses for a few months, and experience many of the signs of pregnancy, even to the extent of abdominal enlargement. However, time will correct the misapprehension. Suppression of the menses from “taking cold” is a common occurrence; and a re-appearance of the flux may not be seen till the next or a succeeding “turn.” If ovulation take place, and there be no menstrual flow, the *molimen* is



experienced, with heaviness in the region of the ovaries, pain in the back, loins and limbs, and a general *malaise*. In a healthy woman I apprehend that menstruation is co-incident with ovulation. I do not contend that the acts always occur together, but that they should to be in accord with the demands of nature.

A chlorotic state in a young woman who has imperfectly menstruated a few times, is a feature of amenorrhœa, or is co-incident with it, or contributes to the suppression. The skin of the patient presents a yellowish green hue, the lips are colorless, the eyes sunken and expressionless, the morbid condition being attended with vicarious pains and mental caprices.

Chlorosis embraces many ills, among which are leanness, hot flashes, cold feet, constipation, puffiness about the feet and ankles, backache, tired sensations, and general misery. There is generally a precarious appetite, and cardiac throbbings of an unpleasant nature.

Morbid states just enumerated are not to be cured with "driving medicines," but with skill in nursing. The patient must have the appetite whetted with delicacies, the mind diverted with pleasant attentions, the digestion strengthened with peptics, and assimilation re-established with iron and arsenic. Possibly a tuberculous condition of the lungs exists in connection with chlorosis, the one hinging upon the other.

Hysterical conditions depend upon amenorrhœa, or one is concomitant with the other. A woman who misses a catamenial "turn" is likely to be worried, and mentally perverted till an hysterical paroxysm sets in. If the temporary suppression depend upon a slight cause, the use of assafoetida may prove decidedly curative in all respects.

Mental shock and absorbing interests may be profound enough to suspend the menstrual functions, yet a lapse or two need do no lasting damage. Sea voyages and mountain climbing have been known to suspend temporarily the catamenial function. Female clerks and factory girls who leave warm apartments to buffet cold and damp airs without sufficient clothing, especially if they go to fireless rooms, are liable to be victims to menstrual irregularities, amenorrhœa being one of them. Work-women who are ambitious to appear in fashionable attire, are apt to sacrifice comfort to show,—a warm garment for tinsel and sheen. The young do not appreciate the dangers incident to impressible constitutions,—they never



dream that they may suffer as a tender plant does from an untimely frost.

A young woman visiting the sea-shore in summer may long to indulge in the luxury of a swim in the ocean, and may enter the cold water just before a menstrual period, thereby exposing herself to a chilling shock, which arrests a developing catamenial flow. The depressing effect of one suspension leads to another, so that an established amenorrhœa may follow the indiscreet act.

*Treatment.*—The management of amenorrhœa, as of other diseases and disorders, depends largely upon the cause of the menstrual suspension. In the event that pregnancy is alleged as the cause, nature is to be permitted to take its course. If a flexion of the uterus or a uterine tumor be the obstruction, a way should be devised to overcome the hindrance to catamenial discharges. An imperforate hymen is to be incised, and “cervical stenosis” overcome through excision or dilatation. Atresia vaginæ is to be surgically removed. The absence of a uterus is not remediable. However, to ascertain positively that nothing can be done to remove the cause, is furnishing valuable information. The incompetent elicit no facts worth knowing, and leave the patient in a worried state of uncertainty. If the second climacteric be passed, the woman is not to be plied with coercive or “driving” medicine. Then, again, if a woman have incipient phthisis or developing cancer, the means of cure should be selected with regard to the special pathological state. A tuberculous state of the body often exists before the family physician suspects the presence of a serious malady. Cancer of the womb not infrequently gets into advanced stages of development before the stealthy trouble awakens a grave suspicion of its presence. Time, of course, will make plain what once was puzzling. I remember distinctly of having said in consultation that a suppressed menstruation depended on a cancerous ovary. Amenorrhœa had existed for three months; and the patient had suffered much pain at times; and may have had salpingitis, but a certain pallor of the skin, with other anæmic features, led me to suspect cancer; and within three months more it was plain that the disease was carcinomatous.

If the menstrual arrest depend upon debility, chlorosis, or a neurosis, and the amenorrhœa be continued through hard work and insufficient food, the course of medication is plain. The patient needs “acid solution of iron” one day, hypophosphites and arsenic the next day, and salol or exalgine on the day fol-



lowing, an alternating medicine coming every third day. At the same time the diet should be nutritious and easily digestible. The mind should be diverted and the body strengthened by proper exercise. A poor patient should do light work; and the well-to-do may take walks, rides, and other diverting recreations.

A girl with amenorrhœa has usually been dosed with herb teas before the doctor is called. If she be chlorotic, the wise women of the neighborhood will have suggested specifics, and thereby have demonstrated that the case is serious enough for profound consideration. The history of the patient should be a subject of professional inquiry. If amenorrhœa depend upon anæmia, mal-nutrition, and mental worry, an emmenagogue, as a driving medicine is called, should not be administered, but tonics and a generous diet—iron and arsenic constituting the tonic medication. But if the amenorrhœa be a neurosis, without constitutional enfeeblement, a remedy which will awaken neural activity in the pelvic ganglia of the visceral system of nerves, if such a specific there be, is the one indicated or suggested. *Macrotys* and *pulsatilla*, in tinctures and administered in alternation, are approximately specific, if not emphatically such. Many medicines are good until better are demonstrated. I have used *veratrum* when a cardiac disturbance was associated with amenorrhœa; and with much satisfaction, the case improving from the start; and *strophanthus* has seemed to do some good when the heart needed a steadying influence for a long time. Of a tincture of *veratrum* one drop every four hours is a dose; of a tincture of *strophanthus* from three to five drops constitute a dose, to be repeated every four hours. The medicines are not to be given on the same day, but one or the other should be selected to alternate with iron or arsenic. I have prescribed with satisfaction two drops of acid solution every four hours, and one drop of *veratrum* every four hours, one medicine or the other coming every two hours; and on the next day I have changed to one drop of Fowler's solution every four hours, and five drops of tincture of *strophanthus* every four hours, one medicine or the other coming every two hours. I would not venture to say that any mysterious influence is secured by the double alternation, yet the scheme has operated well in my hands.

If the patient be constipated, there may be a call for the laxative action of *cascara sagrada*: if, again, there be a pronounced indication for any other remedy—for antipyrine as an antithermic—for sulfonal to overcome insomnia, or for menthol to



be inhaled to cure headache—the medication may be modified to meet the wants of the case.

If, again, the menstrual function be located in a neural center—in a ganglionic plexus—and not in the ovary, as generally supposed, and amenorrhœa depend upon sluggishness of the function, as it unquestionably may do, an excitant of neural activity specific in kind would be in demand. Possibly emmenagogues may be inefficient or unscientifically classified, yet most of them are vegetable stimulants and stomachics, as ginger, cloves, sage, pennyroyal, nutmeg, spearmint, and aromatics in general. Probably not one in ten of the list acts directly upon the catamenial function; yet most of them made into infusions and taken hot, may bring about emmenagogue action. *Majalis* and *digitalis* indirectly affect menstrual action; but since it has become known that a woman may menstruate after the uterus and its appendages have been excised, the catamenial energy is no longer placed in the ovaries, but is referred to a definite neural center—to a splanchnic ganglion devoted to the periodic and reproductive energy. Through the discoveries of operative gynæcologists, old notions of menstruation have been somewhat modified. The erotic sense centers in one place or plexus, and the catamenial activity in another. The forces of the reproductive system may be more or less intimately associated, but do not originate in the same neural ganglia or centers of activity.

*Viburnum* is a remedy of value to physiologically and therapeutically arouse the menstrual function, especially when the activity needs exciting. This expression may lead to the remark that medicine may not act remedially unless there be a call for such action; and that is just what is meant. Ergot in a given dose which will provoke a labor throe in parturient states, will not impress the uterine system when pregnancy does not exist. *Viburnum* will not impress the menstrual functions when every activity is normal or physiological, but exerts a needed influence upon retarded or lapsed menses,—will arouse a menstrual energy abnormally inactive.

The use of rue, turpentine, and oil of tansy should rarely, if ever, be employed to provoke catamenial activities which are torpid or morbidly inactive. Most of the so-called essential oils are “driving” or emmenagogue in their effects, yet damaging and dangerous. They may be regarded as ecbotic, hence unfit for internal medicines.



I have employed permanganate of potash as an emmenagogue, yet dislike its staining qualities. However, it may be administered in capsules or tablets to get rid of its objectionable features.

Leontin has been put forward as a potent energizer in states of amenorrhœa; but the medicine is most useful in modifying a dysmenorrhœa that depends upon a neurosis. I should not commend the agent as the right one to overcome amenorrhœa, especially if the suppression or suspension depend upon an enfeebled state of the body; but that a rugged state of health be secured before a "driving" medicine is employed. The use of a small amount of sulphur every three or four days as a vermifuge, if intestinal parasites be suspected, is not to be neglected. Besides, sulphur supplies a want of the lymphatic system that is not generally appreciated. If *glycosuria* exist or *lithæmia*, sulphur in ten grain doses every three days is a medicine of great value.

In a case of subinvolution of the uterus, with amenorrhœa as a sequence, the agency of douches, as hot as can be borne, hastens a return to normal states. In connection with baths, permanganate of potash in ten grain doses twice a day may be utilized; the remedy proving curative.

In a case of amenorrhœa, with no disturbing pain except occasional cardialgia, I gave nitro-glycerine, prescribing the drug in drop doses of a hundredth dilution. The medicine was used on sugar, yet might have been administered in capsules or in tablets. It is a powerful medicine, and should not generally be given in larger than drop doses. The efficiency of the compound is well known, but why the combination is so much more potent than pure nitric acid, is not understood. Glycerine is in itself not an active medicine; and a hundredth of a drop of nitric acid in water would not be strong; but the combination will sometimes make the head feel unsteady, though only a drop be given. Glonoine (nitro-glycerine) acts as a tonic to the heart, and proves useful in the management of Bright's disease.

The employment of electro-galvanism in the cure of amenorrhœa has been in varying repute for years. If manipulated with skill the agent may yet prove a valuable aid to therapeutics, but thus far no well defined methods of application have been formulated. It fails in so many instances that the agency is uncertain at best. The faradic current applied at random by an experimentalist as ignorant of electrical qualities and



quantities as the turner of a hand-organ, claims to have effected wonderful cures, therefore a fortuitous stroke of lightning may prove beneficial! However, an agent which accidentally cures, may as often do harm, hence at present little confidence can be placed in the indiscriminate use of electro-galvanism. If a peripatetic doctor can sling a Kidder battery to his shoulder, and get a living while perambulating the country, knowing as little of his machine as he does of a locomotive, it is easy to believe that the people enjoy an imposition, if ingeniously or adroitly applied.

“Faith healers” and “peculiar people” are now in the field with multitudes of “authenticated” cures, all produced without a particle of medicine, and with no *massage*—the curative agency depending upon “implicit belief.” And why not, if “faith will remove mountains?” The advocates of the spiritual scheme say, “Pray and believe.” A female miracle-worker said, “I can restore a lost arm or leg, if the patient entertains supreme faith.” Lack of faith on the part of blasphemous mankind is the only obstacle to success! In ancient times the afflicted resorted with faith to the temples of Isis and Osiris. Why not believe implicitly as did the devout Egyptians, and not be at the trouble and expense of employing a physician? “Great is Diana of the Ephesians.”

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## MENORRHAGIA AND METRORRHAGIA.

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Inasmuch as menorrhagia signifies excessive menstrual flow, and metrorrhagia means any hemorrhage from the womb which is not strictly catamenial, it may be well to consider the former first, especially as I have entered upon menstrual disorders as a topic for discussion. The profuse flow incident to the development of uterine myomata usually occurs in connection with a menstrual *nisus*, hence it can not be determined whether the waste be catamenial or a true hemorrhage. In other words, menorrhagia and metrorrhagia may exist at one and the same time. Then again, an enlarged womb, or one distended through a state of sub-involution, is liable to bleed from time to time, whether a menstrual epoch be on or not. If the waste appeared at an ovulation it might be called menorrhagic, but if it occurred between menstrual epochs, it would be strictly metrorrhagic.

Distinctive menorrhagia is a depleting menstrual discharge. The vascular loss robs the victim of strength, and establishes



dangerous states of anæmia. Besides the excessive flow while the menstrual *nisis* is present, there is a too frequent return of the periods. It is not uncommon to hear that a young woman has her "turns" every three weeks, and that they last five or six days. Indeed, instances are not extremely infrequent where one catamenial flow lasts till another begins, so that the victim of excessive waste is never released from the use of a napkin.

An excessive menstrual waste does not always depend upon an enlarged uterus, for the unmarried with undilated wombs are often annoyed with unusually profuse menstrual flows. Chlorosis may be the cause of menorrhagia, and just as frequently menorrhagia may be the cause of anæmia. Every recurring hemorrhage thins the blood, and renders easy a subsequent flow; then, too, each recurrence tends to establish a habit, a disposition to be hemorrhagic. In occasional instances the womb is a constitutional bleeder, or a hemorrhagic diathesis exists, as in scorbutus and hæmophilia—the blood pours forth upon the slightest provocation.

From the preceding remarks it will be seen that uterine hemorrhages which pass as menstruations may not be attended with ovulation. However, it is to be understood that profuse menstrual discharges are apt to be associated with the ripening and escape of an ovum—with ovulation. A woman may have what she denominates a menstrual "turn" every two weeks, or even oftener, and feel full, heavy, languid and congestive about the genitalia, yet not have a real catamenial flow. In fact the average woman can not tell by her feelings whether she ovulate or not,—she goes by what she sees. If she have a "show" it is called menstrual. If the flow be scanty she imagines a part was held back, and is to appear in abundance at the next menstrual *molimen*.

The menorrhagia that some lank girls experience every two or three weeks is not necessarily catamenial,—it may be metrorrhagic, the physical condition of the womb favoring vascular congestions and wastes. Possibly there is a neurosis which favors hemorrhage. It is positive that the administration of certain remedies will lessen the vascular waste. Just how the remedial virtue is imparted or exerted may not be easy to speculate rationally upon, but the evidence of an impression having been made can not be disputed. A medicine—say leontin—administered to a menorrhagic girl will often restrain the waste in a marked degree. If the medicine were iron it might be



claimed that the agent rendered the blood thicker or more coagulable, but as the remedy is strictly a nervine it must have a selective affinity for the uterine plexuses of nerves.

The commonest causes of metrorrhagia are uterine enlargement or distension, as sub-involution after parturition or miscarriage, myomatous hypertrophy, and the development of polypi within the cavity of the organ. A miscarriage at two months, or while the uterine tissue is too compact for the display of contractility on the part of the womb, is apt to be followed by drizzling and perplexing hemorrhages. The organ is heavy and descends below its normal plane, and the displacement contributes to the hemorrhagic tendency. The cavity of a womb having lately undergone miscarriage is too much expanded. The lining membrane is altered in character—is constantly congested; and a highly vascularized endometrium will readily part with blood—will bleed upon a slight provocation. The mucous lining of the uterus sometimes develops vascular fringes—vegetations—which have to be scraped away with a curette. The morbid state may come from the retention of a menstrual decidua, and give a deal of trouble before it is entirely destroyed. A fault of the curette is that it does not reach every niche in the uterine cavity, but leaves enough vegetations to spread anew over cleared space. I have employed the curette on several patients whose hemorrhagic states could not be reached in any other way. At the first trial I expected to provoke hemorrhage by the use of the “spoon,” but the contrary proved to be the result. I thoroughly scraped the endometrium, the instrument going deep into the horns of the womb. The metrorrhagia was bettered for the time, but gradually became aggravated, so that the curette had to be used again. At length I conceived the idea of assaulting the vegetations with salicylic acid. A drachm of the salt was mixed with four ounces of glycerine and distillate of hamamelis, equal parts of the latter. With a long-nozzled hard-rubber syringe I threw an ounce of the mixture into the cavity of the womb. In three or four days I repeated the operation, until six or eight applications had been made; and marked benefit was obtained within two weeks. The mild escharotic attacked the vascular tufts and drove them into bloodless atrophy. While I would not hold the curette as a useless implement in the reticule of the operative gynæcologist, I suggest, as generally better, the use of the salicylic acid injection. In tufty and vascular states of the endometrium I have not found that the injection provoked the



shock that sometimes follows intra-uterine enemata. A fringy state of the mucous lining of the womb is not found in virgins, but in women who have endured miscarriages, sexual abuses, and venereal complications.

Polypus of the womb generally grows from the lining of the cervix, but may spring from the fundus or one of the horns of the organ. But, wherever be the site of attachment, hemorrhages are a sequence. The cure is the radical removal of such tumors, and by methods to be described later. The procedure is operative.

The retained products of conception—an impacted chorion or a small placenta—are common causes of repeated and persistent hemorrhages. A compact mass of placenta may remain in a horn of the uterus for weeks, and even months, without creating great disturbance. However, the foreign body is liable to provoke hemorrhage at any time; and the patient can not be considered safe till the more or less putrid mass is removed. While it is present the womb is sensitive, the ovaries are tender, and peritonitis threatens. To remove the foreign substance requires dilatation of the cervical canal with Ellinger's dilators and glove-finger stretchers. This part of the operation may require a half hour or more; then the placental scoop or spoon is to be made to pry the wad from its place of rest. While the manipulation is going on the patient is kept in the bi-manual position, and the left hand is employed on the hypogastrium to press the womb downward. The patient is to rest on her left side with her limbs forcibly flexed. The operator takes a position behind the patient. In this relationship the finger of the right hand may reach and dislodge the imprisoned placenta, no scoop or spoon being needed. Those operators who place the patient on her back can not with their fingers reach the depths of the uterine cavity. There is no procedure in operative gynæcology where the advantage of position is so pronounced as in the relative positions I have named for the removal of an incarcerated placenta.

*Metrorrhagia* is a sequence of *placenta prævia*, the developing foetus causing detachment of one or more of the placental cotyledons. Although the hemorrhagic state may be understood, the remedy is not always at command. A tampon will stop the vicarious flow, but it may provoke miscarriage. No medicine will do much good unless it be ergot, and that will not prove continuous in its effects. A few days of physiological development on the part of the uterus will wedge off a segment of placenta



and out will gush the blood. If the placental attachment be central, or chiefly so, the bleeding will be terrific when labor commences. However, nature has means of her own which are conservative and preservative. As the child's head advances and fills the os and cervix, the placenta is pressed against its attached spot, and held there for a time. The pressure tampons the uterine sinuses, and prevents bleeding. A man's hand and arm carried into the cavity of the womb in search of a foot, with the turning process in view, will also hold the placenta snugly against the uterine sinuses, occluding them. To conduct such a complication to a successful issue requires both courage and skill. Scarcely anything in obstetrical surgery demands so much experimental knowledge. Timidity and procrastination result in disaster to mother and child oftener than bold procedures. Speedy delivery is about the only safe way out of the difficulty. In such a case meddlesome midwifery is not bad.

Porro's operation is advised by Tait to lessen the dangers of placenta prævia. The abdomen is opened, the uterine cervix constricted, the womb incised, the child and placenta removed, the body of the uterus excised, the stump dressed, and the woman and child saved.

It is not uncommon for a pregnant woman to be prostrated with uterine hemorrhage. Neither she nor her physician can tell what provokes the untimely waste, but the gravity of the situation must be met, and the responsibility assumed. The patient should take the recumbent position and be made comfortable. If pain exist it should be subdued with anodynes. At the end of a week, if the hemorrhage have ceased, a moderate degree of exercise may be ventured upon. In the event of a recurring hemorrhage a more prolonged period of rest can be enforced. Should abortion occur, hemorrhage is about sure to attend several features of the mishap. To turn out coagula and empty the uterus of the placenta are in order, and should not be delayed. Ergot may be administered in energetic doses. Decomposing masses endanger metritis and peritonitis, hence the imperative need of evacuating the uterus of septic material. Hot douches are not damaging, and often restorative. If such measures do not succeed in emptying the womb, the patient should undergo an anæsthetic, and the medical attendant is to dislodge the placenta in the way already indicated. Hemorrhage and pain will cease as soon as the uterus is evacuated.

A perplexing complication is when the womb slowly fills with coagula, and a paroxysm of throes expels the clots as if the



mass were an aborted ovum. The coagulated lump takes the shape of the inside of the womb, and exhibits some of the features of chorion tufts and foetal membranes, hence the unwary practitioner may be deceived in regard to the true state of affairs. It is well to tear the expelled mass with splinters of wood that the real character of the lump may be revealed. As soon as a clot forms and is expelled, the womb fails to contract so another cannot form. Ergot and hot douches may make the uterus contract, and save other hemorrhagic losses.

The tampon is one of the most potent of agencies in attempts to arrest uterine hemorrhage following abortion. The plug or dam is not to be carried through the vulva in the old way, but a duck-billed speculum is to be employed to dilate the passage and to offer a smooth and trough-like surface for the fabric to slide along into place. Pieces of old cotton or linen will do to construct the tampon. One wad after another is sent along its way in the groove of the speculum, and with the finger or any simple plugger, is pressed compactly in the depths of the vagina. These wads or compresses constitute a barrier to the flow of blood. The tampon is to be removed in a day or so to get rid of putrefactive odors and the dangers of septicæmic poisoning. I have but one objection to the separate compresses, which is that they are not easily removed. I prefer fabrics in strips like a bandage, for they can be pushed into place by the aid of the Sim's speculum, and packed in folds till the vaginal canal is distended. Upon removal an end is seized and the folds are reeled out without a troublesome gouging with the finger.

Hemorrhages following delivery at full term are to be arrested by making the womb contract. A hand on the hypogastrium may squeeze the expanded uterus till it contract, but considerable force must be imparted.

The most troublesome cases are those where the womb will not stay contracted, but expands again and again under the influence of a growing blood-clot. Ergot in large and repeated doses should keep the womb contracted, but occasionally the drug fails to execute what it has the reputation of doing. As a *dernier resort*, and *in extremis*, I have ventured to employ a vaginal tampon, and staunched the troublesome bleeding. At the end of twenty or thirty hours the tampon will become offensive and should be removed. If there be evidence of freshly flowing blood, another tampon may be employed. This treatment is not *secundem artem*, but is a necessity which knows no law.

Metrorrhagia which comes from epithelioma or carcinoma



uteri is to be correctly differentiated at the start, if positive knowledge of the state be possible. In obscure cases the real status of the disease may not be determined for weeks or months. A knobbed state of the uterine cervix, a fixed state of the organ, and an anæmic condition of the body, contribute to a rational diagnosis. If severe pain be added to the symptoms, and a sickly smelling discharge be abundant, the testimony is fairly convincing. If a vegetative excrescence appear at the uterine os, and easily bleed when touched, the neck of the womb may be excised to get rid of the malignant growth.

The treatment for ordinary menorrhagia consists in the use of such agencies as invigorate the general health. The anæmic girl needs a substantial diet, good cheer and tonics. The blood-making processes are to be stimulated and supported. "Acid solution of iron" should be administered in two drop doses, and *mangifera indica* may be given to advantage. The use of arsenic, phosphorus, magnesia and copper—all in small doses—may be prescribed to lessen the hemorrhagic tendency when ovulation returns. The use of *veratrum* internally, and turpentine to the back and abdomen, will do a moiety of good, and should not be neglected. The fungus of maize, and *hamamelis*, in alternation, are remedies of repute in ordinary menorrhagia.

*Leontin* is an agent of value in what might be termed excessive menstruation; and Lloyd's *hydrastis* has proved curative in hemorrhagic states depending upon "change of life," and in open states of the womb—in sub-involution.

Travel, with change of diet and other varieties, is to be commended for the studious and sedentary. A sea voyage has been known to effect marvelous transformations in a curative way. An anæmic girl suffering from menorrhagia should be removed from school, and sent upon diverting excursions. As soon as the sallow, lean and sentimental maiden takes an interest in rustic life, she will escape excessive menstrual wastes. Robust country women rarely suffer from menorrhagia.

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### DYSMENORRHŒA.

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Pain preceding and attendant upon menstruation, whether the distress be occasioned by a *neurosis* or a *stenosis*, is denominated dysmenorrhœa, a term signifying a menstrual flow accompanied by suffering.



The testimony of women in general is that they rarely undergo menstruation without enduring more or less pangs peculiar to the catamenial period. Perhaps not one female in ten experiences downright agony, yet recurring twinges of cutting pain that are quite distressing. It may be said, then, that the normal state of the menstruating woman is that of pain.

Menstruation is, to a certain extent, traumatic, for it is commonly associated with ovulation, a physiological operation that comprises the rupture of a Graafian follicle, and the laceration of capillary vessels ramifying in the endometrium. In connection with these traumatic conditions, there is congestion of the genitalia, especially of the uterus and ovaries. The distended vessels necessitate a feeling of fullness or tension that is annoying and depressing. A sense of relief commonly attends a free discharge of menstrual fluids.

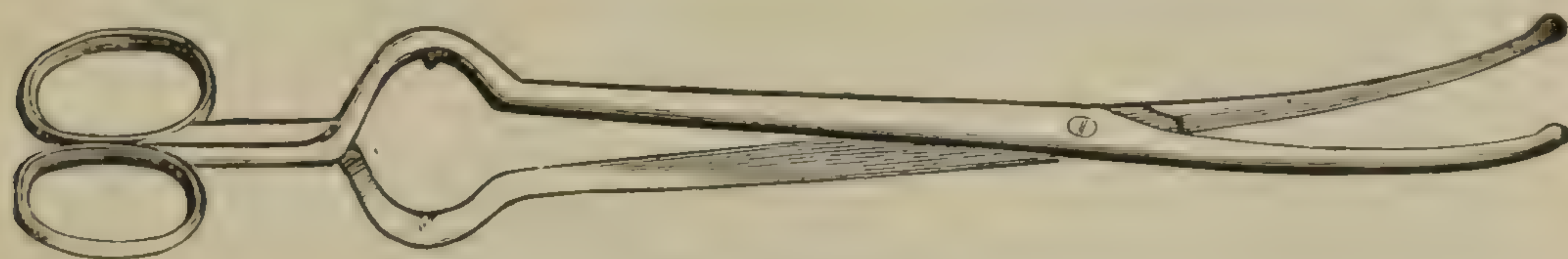
It is not to be understood that all catamenial pangs are physiological, for most of them arise from morbid states that can be relieved or entirely overcome. An hyperæsthesia amounting to a neuralgia may be lessened, and a mechanical obstruction can generally be removed. The neural disturbance attendant upon dysmenorrhœa seems to be the natural sequence of local plethora, though it may spring from a disorder of the nerves endowing the womb and ovaries with energy and sensibility, hence be a neurosis.

Mechanical causes of menstrual pain are numerous, yet not so common as once supposed. There are comparatively few gynæcologists who assert that some impediment to the escape of the menses is generally the cause of pain. Among obstructions may be mentioned constrictions of the external and internal os, flexures of the cervix and body of the womb, and plugging of the internal canal with coagula or membranous debris. As a general thing the internal os is the narrower of the two; hence if dilatation be practiced the widening force must extend a little deeper than the canal of the cervix. Tents, constructed of various materials, have been in vogue as gradual dilators. The implements, through absorption of moisture, swell to three or four times their original size. They are made of sponge, the pith of plants, and of other compressible and dilatable textures.

Rapid dilatation may be secured with a steel instrument—the implement of Ellinger or a modification of it—the beak opening through force applied to the handles. The closed beak is a stem or probe not larger than the entering end of a common sound. After the beak passes the canal of the cervix, the



blades may be spread to the desired extent, and held there with a screw in the handles. The implement may be left *in situ* for a half hour or more. It rarely inflicts much pain. One operation may prove efficient; if not, it may be repeated at intervals of weeks or months. It is much easier to introduce the Ellinger dilator than it is to carry to place a tent. Besides, a second manipulation in a day or so is required to remove the implement. Not infrequently a tent is expelled before it has accomplished its object.

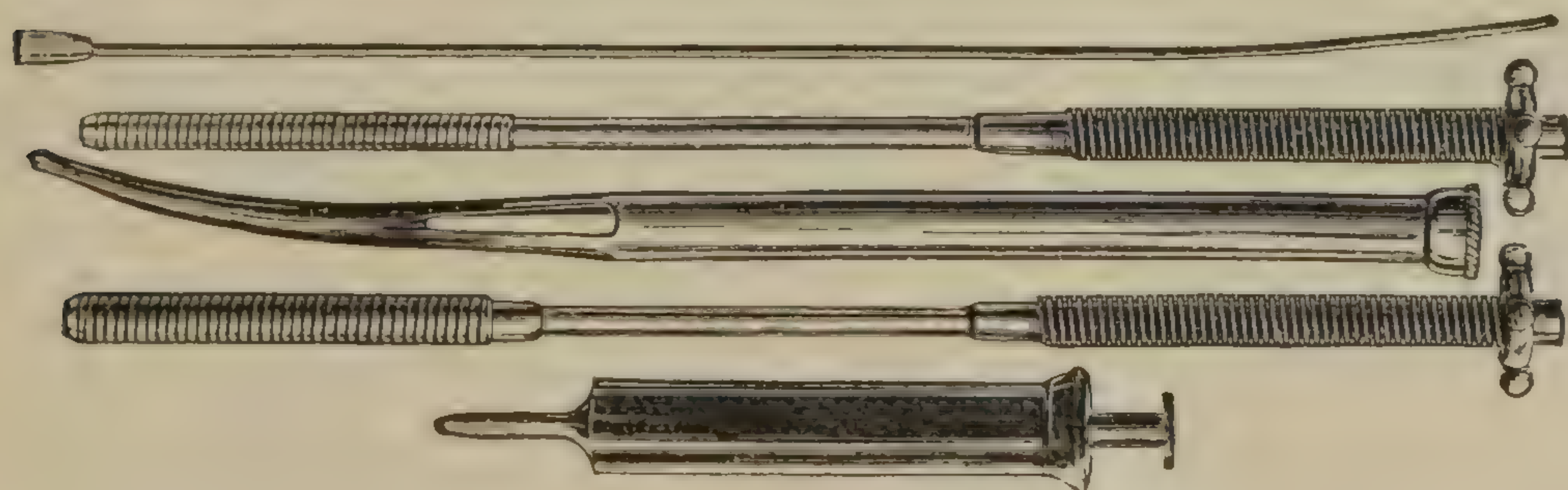


Ellinger Dilator.

The fallacy of the obstruction theory is established by the fact that many women easily pass the catamenial flow through uterine canals of the smallest dimensions; and, on the other hand, females having open and patulous wombs may endure great suffering at menstrual periods. Besides, I have known a woman to menstruate rather easily whose os uteri had been almost obliterated by the injudicious use of caustics to cure cervical ulceration. In one instance the smallest probe could not be made to enter the scarred and contracted aperture. If dysmenorrhœa had existed in that case, I should have excised the cicatricial cervix, and thus restored the orifice.

## CERVICAL DILATOR AND INTRA-UTERINE SYRINGE.

The medical profession is quite well acquainted with Molesworth's inventions for overcoming strictures of the urethra, uterine cervix and rectum. At present I would call attention to some of his later inventions, especially to his "Acme Dilator and

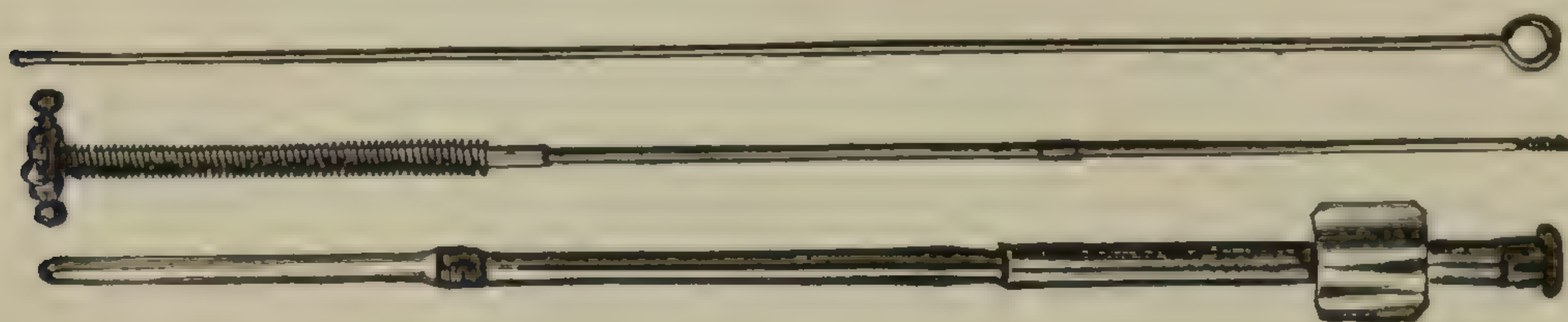


Acme Dilator and intra-uterine Syringe.

Intra-Uterine Syringe." It is useful to dilate the cervix uteri in cases of dysmenorrhœa from stenosis, to cure sterility depending upon an occluded uterine canal, and to wash the endometrium in an efficient and safe manner, a suction syringe

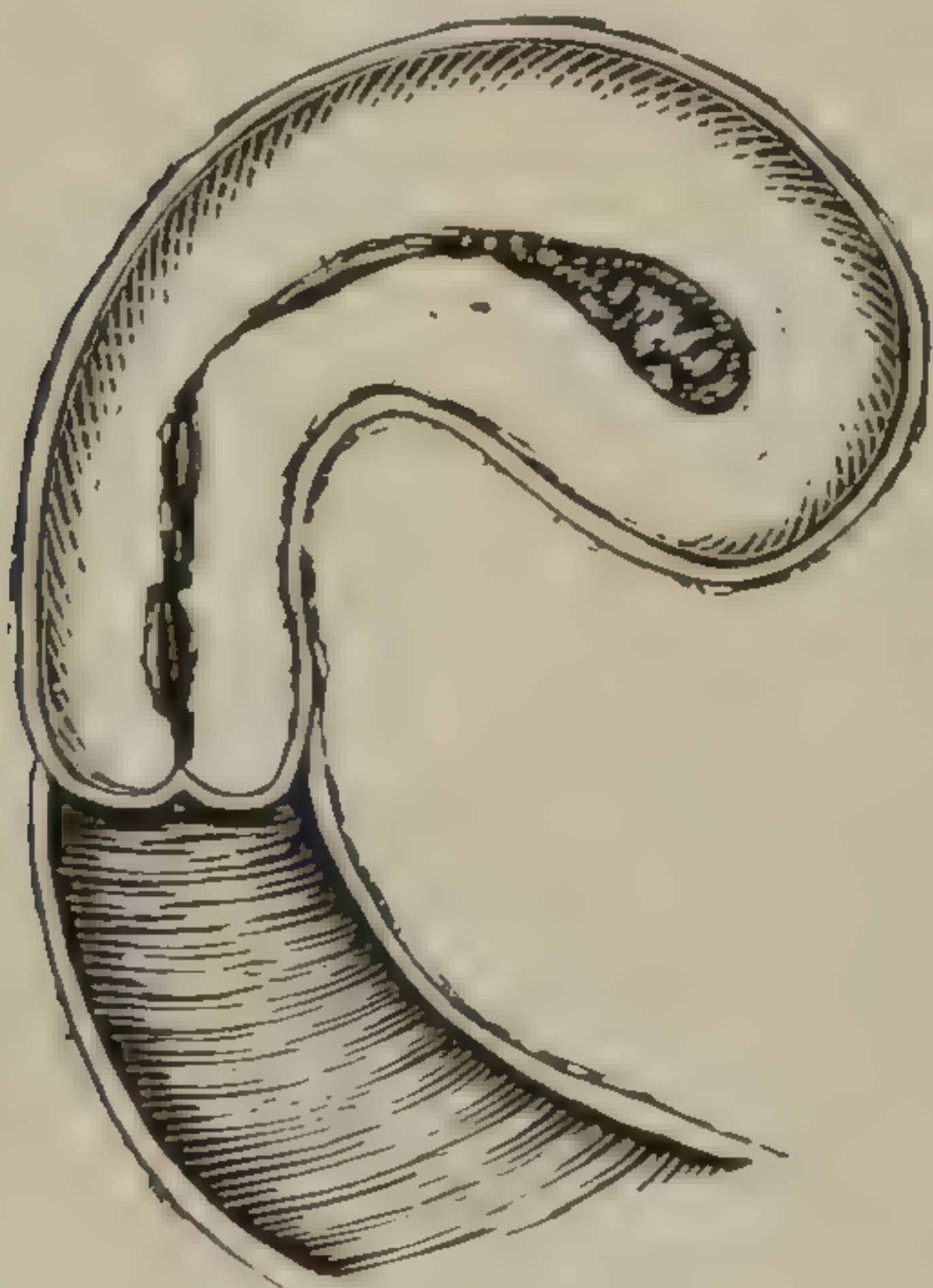


drawing away all intra-uterine fluids. The instrument has several parts, but with “accompanying directions” is not so complex as to mislead or confuse. The instrument can be used to dilate a wound made by a bullet, and to expand the aperture of a contracted prepuce—infantile phymosis.



Cervical Straightener, or Anti-flexor.

Then, again, Dr. Molesworth has devised an ingenious implement for straightening a retro-flexed or ante-flexed uterus. The permeator is first made slippery with soap and water, then sent along the uterine canal, the point readily passing angles by the aid of a flexible copper wire which is temporarily employed to facilitate introduction. After the depth of the uterine cavity is reached, the wire is to be withdrawn, and the “straightening rod” introduced; and with a screw is made to straighten the womb, overcoming all flexions. Directions for use are pasted on the bottom of the case holding the instrument. The two sets of instruments are marvels of ingenuity. While, till lately, I have got along without such mechanical aids, I now feel that I am better equipped for work the instruments are designed to accomplish.



Uterine ante-flexion.

As before stated, flexions, and the attendant congestions of such mal-positions, often produce dysmenorrhœa. Ante-flexion or retro-flexion, with the bight near the cervix or through it, must, in multiple instances, impede a menstrual flow. However, the flexion is not an impediment in all instances. A mere version, with little flexion, need not necessarily obstruct the menses. A tumor developing in the parietes of the uterus may mechanically prove an obstruction to the ready flow of menstrual fluids.

At the catamenial epoch there is known to be, in not rare cases, the formation and disengagement of an endometric membrane. This delicate and friable structure or tissue is related to the decidual membrane of pregnancy. Occasionally the exuded membrane escapes in shreds and patches, and in extremely



rare instances, the extruded mass passes unbroken or untorn, and when spread out the outline resembles the inside of the womb. The difficulty attendant upon the discharge of such a textural mass is called membranous dysmenorrhœa.

Usually the menstrual products are in a fluid state, and pass readily through both the internal and external orifices of the womb. It has been asserted that the boundaries of the internal os have sphincter-like powers to regulate the passage of fluids. When the *debris* of retained menses is forced to pass outwards by uterine contraction, there is a necessity for yielding on the part of the narrowed parietes; and succeeding contraction need not be regarded as sphincteric, but as simply closure through the rebound of elasticity.

The presumption has been ventured that a spasmodic contraction of the muscular walls of the uterine cervix has occasioned dysmenorrhœa. Graily Hewitt says: "Supposing that we start from the hypothesis of cervical spasm as a cause of dysmenorrhœa, we appear to be conducted to the 'retention' view. It has been asserted that the sound can be easily passed into the uterus during the menstrual flow, and while the patient is suffering, but this by no means proves absence of obstruction to escape of fluid or menstrual *debris*, for the uterus may be so much flexed as to create obstruction, while the sound may be made to enter, *straightening the canal in its passage*. Why, it may be asked, do we find that many cases of dysmenorrhœa are relieved by simple observance of the recumbent position during the period? Simply because the existing flexion is thereby somewhat diminished, the canal is a little straightened, and the escape of the uterine contents is thus rendered more easy. The pain which accompanies difficult menstruation is due to *the existence of an impediment to the escape of the fluid*."



Impinging Tumor.



Menstrual exudation.



It will be observed that the distinguished author just quoted is a strong supporter of the "obstruction theory" in regard to dysmenorrhœa. Most American gynæcological writers sustain the view that dysmenorrhœa is fundamentally a functional disorder, and to be regarded as a *neurosis*. Between extremes of these diverse opinions may be the golden mean. It is certain that there exist mechanical causes for dysmenorrhœa. It is at least unfortunate that enthusiastic advocates of favorite theories have inflicted useless harm in executing operations upon the os and cervix uteri. After dilatation, with tents, fell somewhat into disuse, the canal of the cervix had to be incised, slit, or gashed, to give easy exit to the retained menstrual *debris*. Then followed the theory that an incised or lacerated cervix became swollen, indurated, and obstructed, hence the cuts, rents, and fissures must be refreshed and closed according to the most approved trachælorraphy. Possibly a new theory is about to be launched upon us.

It must be considered, in the contemplation of dysmenorrhœa that coagula often lodge in the uterine canal, and become obstructive, provoking paroxysms of pain. The use of an opium suppository at such times will relieve the chief part of the distress. In rare cases it may be needful to use the sound or dilator to break up clots, or to make room for their escape. A free flow is almost always attended with a sense of relief, though the waste may be followed by marked physical enfeeblement. The use of the dilator, in the event that dysmenorrhœa depends upon flexions, is often unexpectedly comforting. The expansion laterally obliterates the constricting angles, and aids in overcoming congestions. I have known immediate and pronounced relief to follow instrumental dilatation.

In a case of congenital narrowness of the canal of the uterine cervix, a graduated set of bougies may be passed; then a sound; and lastly the closed beak of the dilator. The passing of a sound is assisted by seizing the upper lip of the os with vulsella, and exerting a dragging force. The lining membrane of the cervical canal is studded with furrows and folds that block the way to the entrance of a probe or sound. Flexion of the uterine cervix oftener becomes an impediment to the passage of an instrument than may be generally supposed. A sound, for instance, will pass the external os, and reach a depth of half an inch or less, then the point of the implement has to be withdrawn a little, and carefully sent in many different directions to find, tentatively, the perplexing indirect passage.



The use of much force makes matters worse; tact and patience are needful and generally successful.

The internal os, as before stated, is the smaller of the two, and sometimes quite difficult to bougie. A tupelo-tent, or one constructed of laminaria, can not always be made to pass the strait. At least, I have been baffled in well directed attempts.

A condition of dysmenorrhœa is apt to exist when the uterus is too big and its cavity correspondingly large. I refer to subinvolution resulting perhaps from abortion. The cervix is an enlarged and indurated ring, and the os is corroded and excavated, appearing to the digital touch like the hollow of a thimble. Deeper the lining of the uterus is furrowed and ragged, as if it had just shed a decidual structure. Offensive discharges escape from such a womb at intermenstrual periods, and the catamenial flow is apt to be scanty or profuse and attended with paroxysms of excruciating pain. Such a disordered condition of the womb is not easily and readily overcome. The repeated application of hot water douches will do something towards a cure; and the use of a lint tampon, wetted with a fluid extract of ergot, and planted in contact with the excavated os, will contribute still more to the return of the uterus to its normal size and function. The patient is to be put in the best of health in every respect; and in the course of time the menstrual acts will be free from pain. In a marital relation pregnancy would help in a cure, yet sterility is apt to exist, at least as long as the subinvolution is pronounced.

It may be profitable in this connection to inquire whether the pain of dysmenorrhœa come from an ovarian or a uterine disorder, or from a morbid state of both. As previously stated, ovulation is at the foundation of menstruation, and one physiological action does not generally take place without the other precedes, accompanies, or immediately follows. It is possible that a girl approaching puberty may ovulate a few times before the menstrual or hemorrhagic phenomenon is observed; and a woman near the menopause may have an occasional "show" without there being normal ovulation. And it is certain that a nursing woman may conceive and not see the menstrual sign. Inasmuch as the uterus and ovaries are intimately associated, through neural complexity, it would be illogical to presume one organ could be specially impressed without the other participating in the activity. A maturing ovule would direct an unusual amount of blood to the ovaries; and the increased display of energy would reach the womb. The ovary would first feel



the congestion, but the sense of fullness and tension would soon be felt in the uterus, and to an appreciable extent in all the pelvic viscera. In some cases the bladder and rectum partake of the local engorgement, and quicken evacuating impulses. Not uncommonly a diarrhœa and frequent calls to urinate attend menstruation. Then, again, there may be certain reflex pains which are felt in the back and lumbar region, the spinal nerves taking the irritative impression from connections with the visceral plexuses that endow the ovaries and uterus.

The *fons et origo* of ovulatory force are in the spermatic or ovarian plexuses; and are excited into monthly activity by an influence as unknown to the woman as it would be if located in another person. The latent energy is inherited; and at puberty becomes a pronounced activity. The essential or moving principle of ovulo-menstruation modifies and qualifies the woman morally, mentally, and physically.

Not every girl suffers upon the first approach of the menstrual act, or of succeeding epochs, yet few pass the climacteric without some degree of suffering. The distress is usually not from obstruction, but a neurotic disturbance provoked by congestion; or from extreme irritability of the utero-ovarian nerves. At any rate the menstrual pain endured by a young woman is in its origin a *neurosis*, and to be treated *constitutionally*, and not topically. There is generally no call for local examinations and explorations. The use of a hot brick to the feet, or a heated plate to the hypogastrium may be comforting and even curative. If the sufferer be anæmic she needs peptics and nutrients during intermenstrual periods. Iron, arsenic and phosphorus, in inviting forms, are to be administered. On the other hand, if the sufferer be plethoric she should take macrotys, pulsatilla or apiol—the latter in capsules. Two of these remedies should be given for a week preceding a catamenial epoch. The former may be prescribed in tinctures—three or four drops of either in a tablespoonful of water being a dose, which may be repeated every four hours. It is a good plan to give the two in alternation. Apiol better be administered alone; a capsule every four hours is sufficient. As soon as the flow is free and not painful, the remedial agents are to be set aside; yet to be resumed in two or three weeks. If the pain in any case be very distressing, the bromide of potash, with or without chloral, may be prescribed with safety and satisfaction. The employment of paregoric, laudanum, or of any other opiate, is to be prohibited.



It is common in the country for a maternal *sage femme* to administer tansy tea to her daughter; or to drench her with a hot infusion of herbs of one kind or another. In the majority of instances the domestic treatment is beneficial.

It is neither assumed nor pretended that more than a tithe of efficient agencies now in use for the relief of dysmenorrhœa, has been enumerated. I mention those held in highest estimation by my professional friends and myself. There is some discrepancy among us as to size of dose. One would prescribe enough to make his patients dizzy, while another—perhaps of homœopathic proclivities—would say that no matter how small the dose, provided the medicine be applicable to the phases of the case as tested by the best provings. I have named the sizes of doses found efficient in my practice. Larger or smaller may do about as well. It is difficult to determine what a maximum or minimum dose of medicine may prove to be.

I have employed *leontin* in all sized doses to relieve the pangs of dysmenorrhœa; and not infrequently with marked effects. I have also used antipyrine with satisfaction. In ten grain doses three times a day a dysmenorrhœal patient is usually made comfortable.

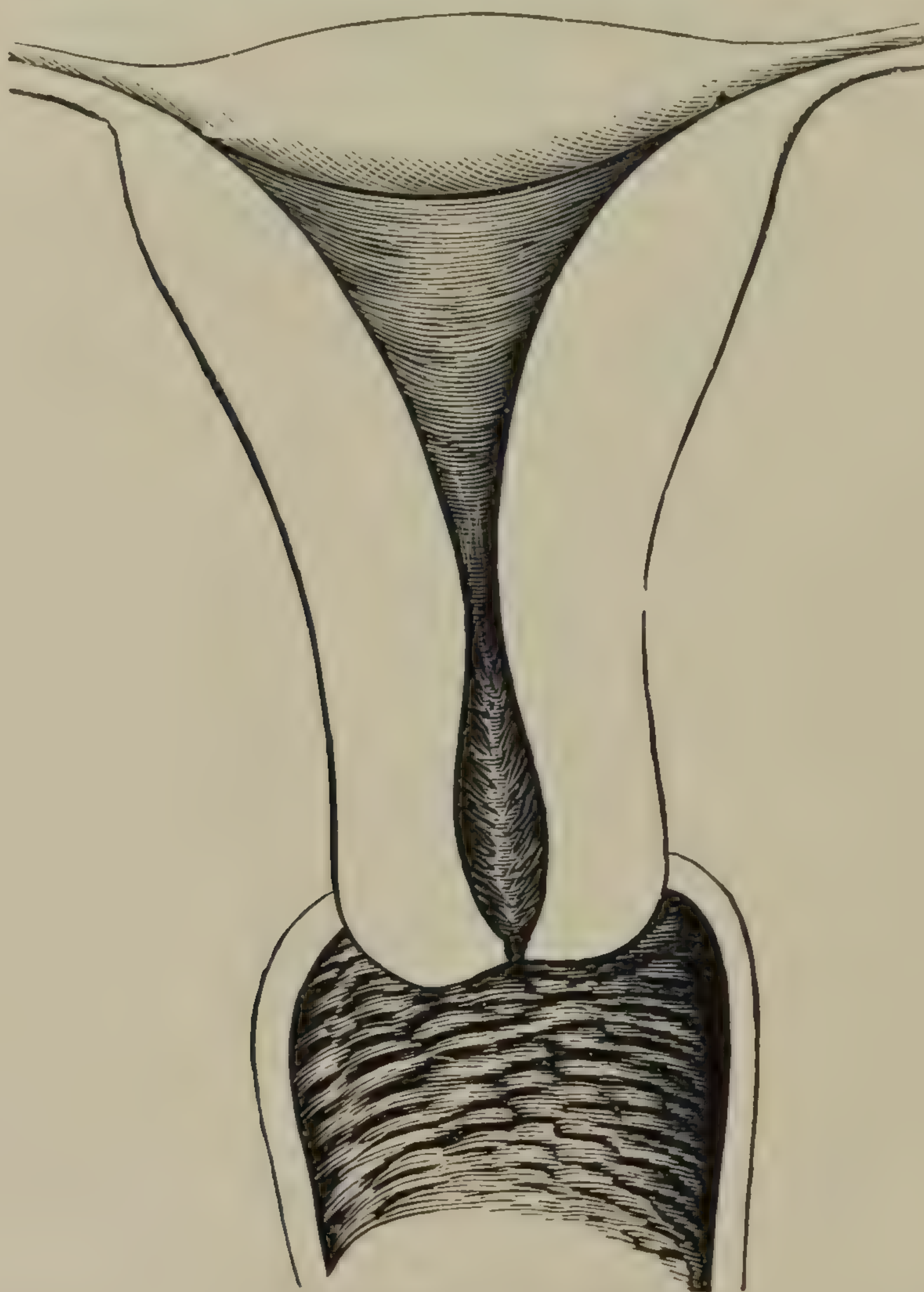
It is generally considered that what will cure one patient will also cure another, or all others; but individuals possess peculiarities or idiosyncracies which may determine that a dose or kind of medicine impresses to a greater or less degree. In selecting remedies to cure dysmenorrhœa, the practitioner must seek agencies outside a routine range, if he would succeed where others fail. I have known sulfonal to relieve catamenial pangs when macrotys would do no appreciable good.



## SECTION VII.

## UTERINE DISEASES AND DISPLACEMENTS.

Diseases of the womb usually have associated with them the morbid activities of adjacent organs. The ovaries and Fallopian tubes are almost a part of the uterus itself, hence through "sympathy of continuity" they must suffer some of



Outlines of Uterus and Cavity.

the disorders of that organ. Retroflexion and retroversion of the womb always interfere with the functions of the rectum, and anteversion disturbs the bladder.

The uterus occupies a central position in the pelvis; and during the menstrual period of life exerts a preponderating in-



fluence over proximate structures. Through reflex activities, which must be acknowledged even if not well understood, remote parts of the body participate in disturbances of the womb. While it may be too common a fault to refer every ailment a woman may have to hysteria, or to a "reflex from the womb," that being an easy way out of a diagnostic difficulty, it must be acknowledged that many a headache, heart trouble, and stomach infirmity, can not be understood without a "uterine reflex" is called into the problem. The periodical headache may come from mental worry, and so may the cardiac disturbance, and the dyspepsia, yet a disordered womb be the most important factor in the distal discomfort.

There may be active disease in the neck of the uterus, yet a comparatively sound state of the body of the organ; yet it is plain that the cervix can not be in a worried condition and the fundus be entirely free of irritation. While the cervix uteri may be physiologically isolated from the fundus of the organ, and the two parts sequentially separate, the one can not be pathologically impressed for a long time without the other sympathizing in the defect. We may talk about endo-metritis and endo-cervicitis as if they were distinct inflammations, but the logical sequence is that there can be no well defined demarkation between them where the boundaries blend. The body of the womb may be physiologically enlarging (pregnancy) for a season—for a month or two—and the cervix not participate in the hypertrophy, yet in time the neck thickens, and enlarges *pari passu* with the remainder of the organ.

There may be cancer of the uterine cervix, and be so localized that amputation of the neck will result in a cure, the body of the organ never becoming involved in the disease which led to excision of the womb's neck. I say that such a localization may be, and such a cure performed, but in exceptional cases. The condition is cited to show that the cervix uteri and the body of the organ may be separately impressed in morbid invasions.

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### ENDO-CERVICITIS.

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The uterus (from *uter*, a bottle) is flask-shaped, and suspended, base upwards, in the midst of the pelvic viscera. It is substantially a muscular body, and capable of exerting great expulsive power during parturition. In its normal or unpregnant state, the organ is three inches in length, and weighs



about two ounces. At the end of gestation it is ten or twelve inches in length, and weighs from two to four pounds. After delivery it will return (involution) to its ordinary size in two or three weeks. However, it may tardily pass through the physiological atrophy which succeeds parturition. An arrest of the involuting process leaves the womb too heavy—in a state denominated *sub-involution*.

If the womb be bisected—split into halves—and the face of a segment viewed and measured, it will be observed that the uterine walls are nearly a half inch in thickness, and that the enclosed space is about an inch from one horn or angle to the other; and that the length of the cavity from the *os* to the *bas fond* is two inches and a half. If a measurement show a depth of three inches, there is evidence of hypertrophy or sub-involution. If it show less than two inches and a half, there is lack of development or senile atrophy. In looking upon the cut surface of a bisected uterus, the cavity of the organ seems much greater than it really is. The hollow is broad, but exceedingly shallow. In fact the antero-posterior walls of the womb rest in contact. They are lined with a seemingly smooth membrane called *endometrium*. In the right and left angles are orifices which, with the canals of the Fallopian tubes, communicate with the ovaries. The *os uteri* (*os tincæ*) is the opening in the lower end of the womb—the commencement of the canal of the cervix, which ends at a constricted aperture called the *os internum*. Between the *ores*, or mouths, the distance is about an inch, and the width at the middle is appreciably greater than the average diameter of the cervical canal. This expanded space exhibits in its walls a series of ridges and intervening furrows—like the ribs and interspaces of leaflets; and the tree-like display is denominated *arbor vitæ*.

The uterus is flattened from before backward; and the cavity of the organ and the canal of the cervix partake of the antero-posterior flattening. In fact the walls of the cervix obliterate the cavity of the canal, as the parietes of the body of the womb close the cavity of the organ. A picture of a segment of the uterus displays cavities in the cervix and body of the organ which are exaggerations. The bulb of a common probe can not enter the *os uteri* and be carried to the bottom of the cavity of the fundus without distending the passage to some extent. It would meet with considerable resistance while penetrating the *ostium internum*. After the external *os* is passed, the entering sound finds more space, yet the course of the instrument up-

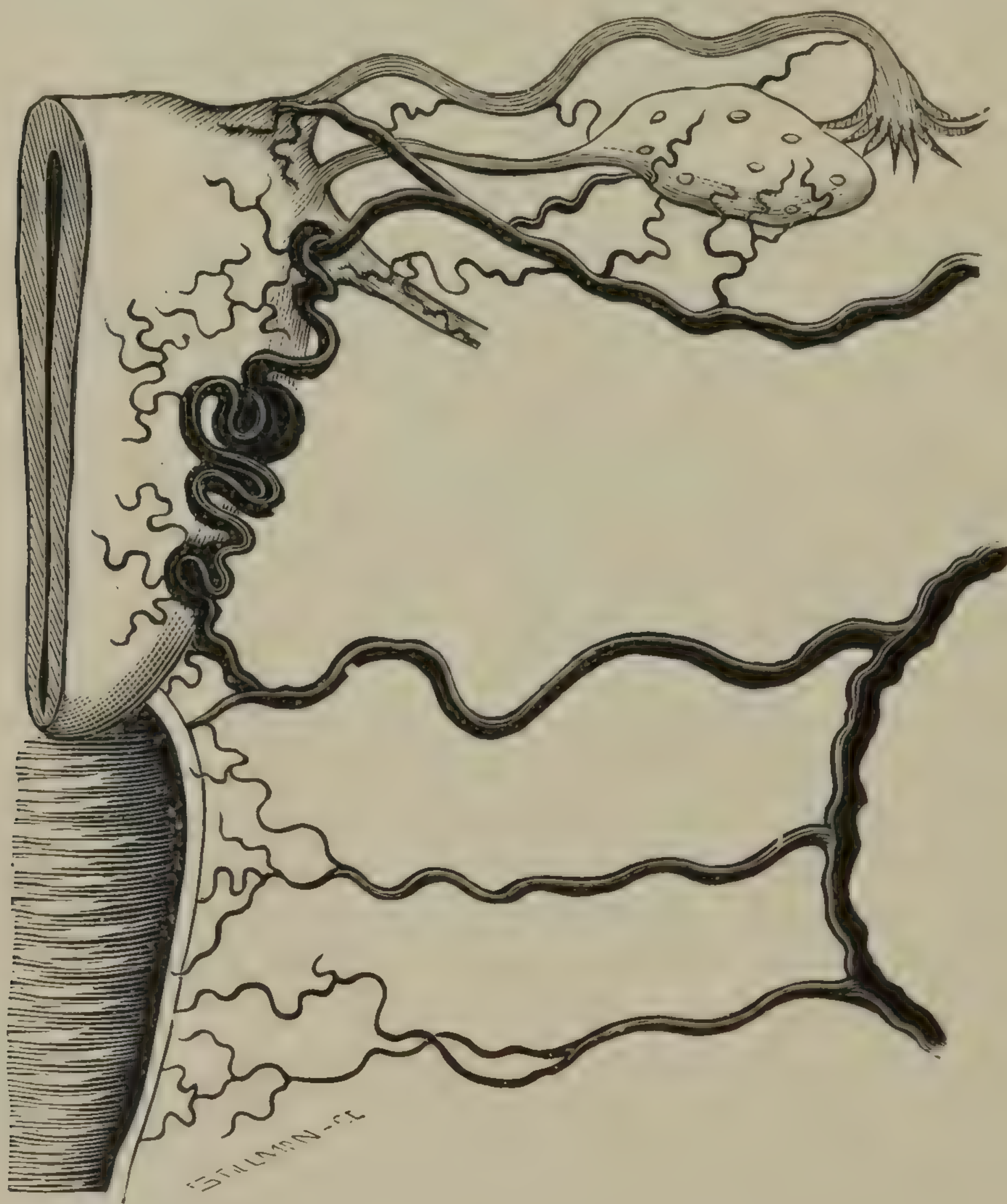


ward is apt to be obstructed by the ridges and furrows of the *arbor vitæ*, or fern-leaf. Besides, the lining of the neck of the uterus is studded with muciparous follicles (glands or ova of Naboth), which prove obstacles to the passage of a uterine sound. It is to be noticed that the os is not always in the center of the cervix; it is often situated near the anterior edge or border of that part of the neck which projects into the vagina, and is visible through a speculum. Then, too, the orifice is not always the opening of a straight tube or canal, but rugæ of mucous membrane so fold or overlap that the entering end of a sound becomes blocked to an extent that the inexperienced manipulator may find himself unable at all times to conduct the instrument through the canal of the cervix. Sometimes a cup-like cavity just within the os will have an orifice opening upward, that is "out of line," or at varying axis. Occasionally it may be necessary to seize the cervix with a tenaculum or vulsella forceps, and drag upon the organ to straighten it, in order to facilitate the passage of the sound. While the uterus is in a cramped state, the lacunæ in the cervical canal are likely to pocket the end of the uterine probe.

The vessels furnishing the womb with blood are the uterine arteries, which spring from the anterior division of the internal iliacs, and go tortuously to the sides of the cervix, then ascend the walls of the womb in a very tortuous manner, anastomosing with the ovarian arteries which descend from the aorta. The ovarian arteries furnish somewhat less blood to the womb than the uterine, yet the anastomosis is so free between the two systems of vessels that if the trunks of either become obstructed, the other would bring an abundant quantity. It is not proper, therefore, to say that the ovarian vessels supply the fundus of the organ, and the uterine the cervix, for both sets of vessels send branches to the entire organ. The tortuosity allows of ready accommodation to altered states as the uterus enlarges in pregnancy, and rises out of the pelvic cavity. It may be remarked that the ovarian artery reaches the fundus of the uterus between the layers of the broad ligament, and the uterine arteries, after passing downward and inward to reach the cervix, turn upward between the layers of the broad ligament, anastomosing with the ovarian trunks by such large mouths that it is difficult to tell where the one ends and the other begins. It may be remarked in this connection that the uterus can not be safely excised without attention is paid to the two sets of vessels. Ligation of the broad ligaments would control all hemorrhage.



The next cut, drawn from an injected specimen, is accurate enough for surgical purposes. An incision through the fornix on either side of the cervix makes way for a hook to catch and drag the uterine arteries into the vagina, where they may be ligated. Pictures in anatomical works which exhibit the arteries of the uterus were evidently not made for the use of the surgeon. The two uterine arteries, as they reach the cervix, give off anastomosing branches which constitute the circular artery.



The pelvic plexuses of veins freely communicate, and in certain regions they are exceedingly tortuous. In the vicinity of the ovaries tortuous masses of veins appear like tendrils, hence they get the name of pampiniform plexuses. The venous tortuosity displayed along the sides of the uterus is marvelous. Venous blood coming from the womb finds its way mostly into the internal iliac veins. In certain regions the action of un-



striped muscular fiber converts plexuses of veins into erectile tissue.

The lymphatic vessels of the uterus are associated with the pelvic plexuses generally, and at length unite with the lumbar lymphatics, which communicate with the thoracic duct. Septic matter coming from the lining membrane of the cervix uteri might reach the entire lymphatic system of the pelvis, but would go directly to the hypogastric plexus of the lymphatic division of vessels.

The nerves of the uterus spring from spinal and sympathetic sources, and chiefly from the latter. Spinal nerves are distributed sparingly to the genitalia of either sex; and the few go mostly to perineal muscles. They arise chiefly from the sacral nerves. The hypogastric plexus of sympathetic nerves is located above the promontory of the sacrum, between the common iliac arteries, and after receiving re-inforcement from the lumbar and sacral ganglia, distributes filaments to ovarian, Fallopian and uterine structures. Ovulation and menstruation, then, are, wholly beyond the control of the will. Sexual desire is chiefly confined to the external genitalia, over which the will in part exercises control.

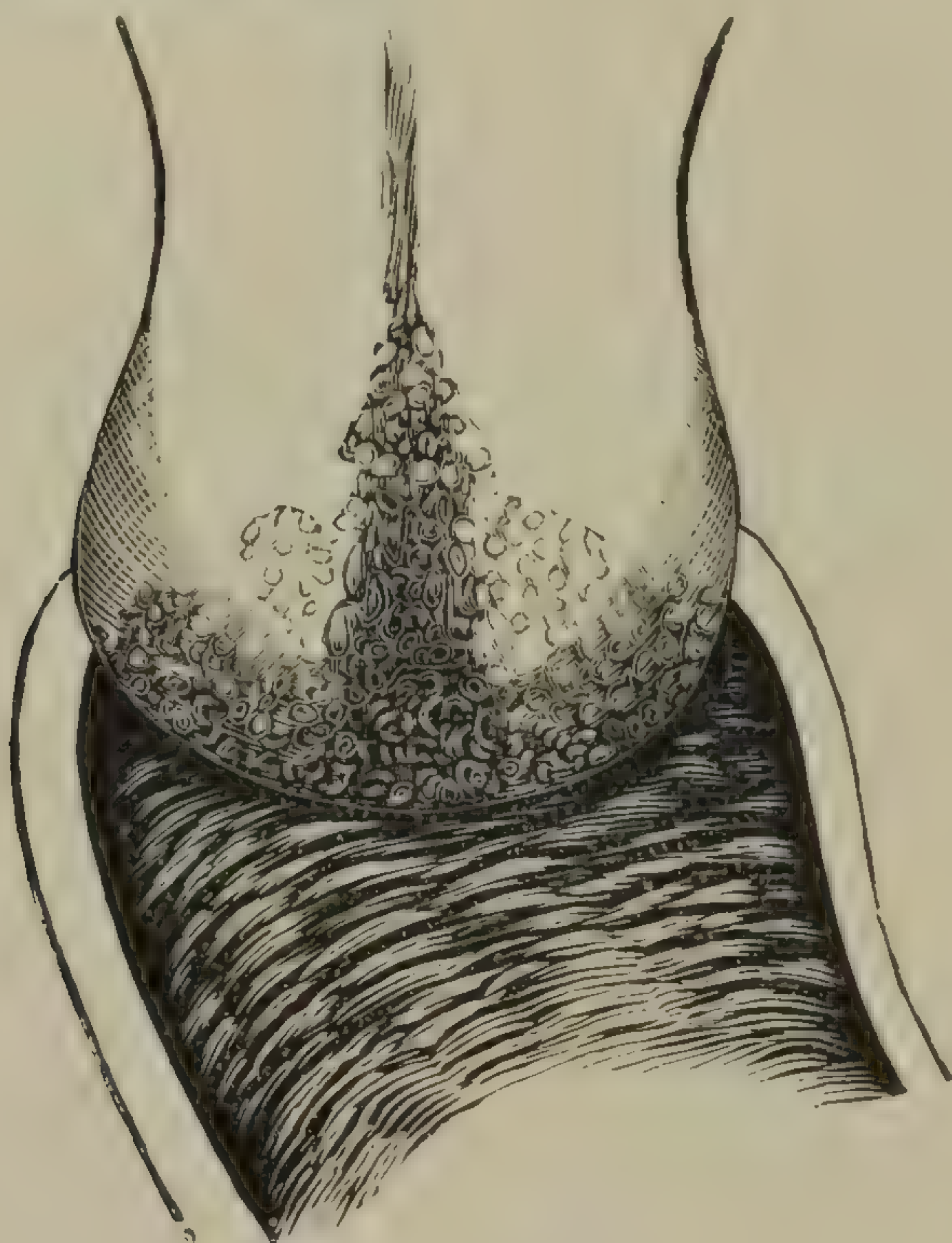
The pathology of the uterine cervix is much better understood at present than it was a few years ago. Then "ulceration" of the os tincae was the physical ill of parous women. Now ulceration is rarely encountered. The treatment was to cauterize the ulcerative os with a solution of nitrate of silver, or with some other escharotic, the operation being repeated every week. Benefit on the part of the patient was obtained from the practice, though based upon an erroneous pathology. Such is a state of things not uncommon in the healing art! A medicine administered to a child to destroy worms in the intestinal canal, may do the patient good though no parasites exist.

A digital examination of the os tincae is a means of eliciting some knowledge of the state of the cervix. The finger can determine the size and density of the lower extremity of the womb, find a notch or fissure produced by parturition, and ascertain the location and shape of the os uteri. The borders of the aperture feel much like the tip of the nose when the finger is pressed between the lateral cartilages. In the virgin womb the os is generally circular; and in the uterus which has gestated the opening is a fissure extending laterally, converting the cervix into anterior and posterior lips. The day before a woman



is to menstruate the parts about the os impart to the finger a pulpy feeling, as they do in the early months of pregnancy.

If pregnancy be out of the question, a sound may be sent through the cervical canal, and to the depth of the uterine cavity. However, this explorative procedure is painful to some women, and is not to be attempted if there seem no good reason for the introduction of the implement.



Fungoid Cervix.

After the digital examination a vaginal speculum, of a distending diameter, is to be utilized for bringing into view that part of the uterine cervix which projects into the vagina. Inasmuch as the uterus meets the vaginal canal at almost a right angle, it requires dextrous manipulation to bring the os clearly under ocular inspection. The light must be good and the vision adjusted to the distance of the object viewed. An inspection with a tubular instrument is best accomplished with the patient in the gynæcological chair, the feet resting in the stirrups. If a duck-billed speculum be employed the woman should rest upon her left side with her limbs forcibly flexed. A bivalve or other complex speculum is easiest used with the patient resting upon her side. However, specula of any kind may be used while a patient is upon a gynæcological table.

The appearance of the neck of a healthy womb is pinkish in hue, like the vermillion of the lip; and the os has a small quantity of mucus lodged in the orifice. If an appreciable degree



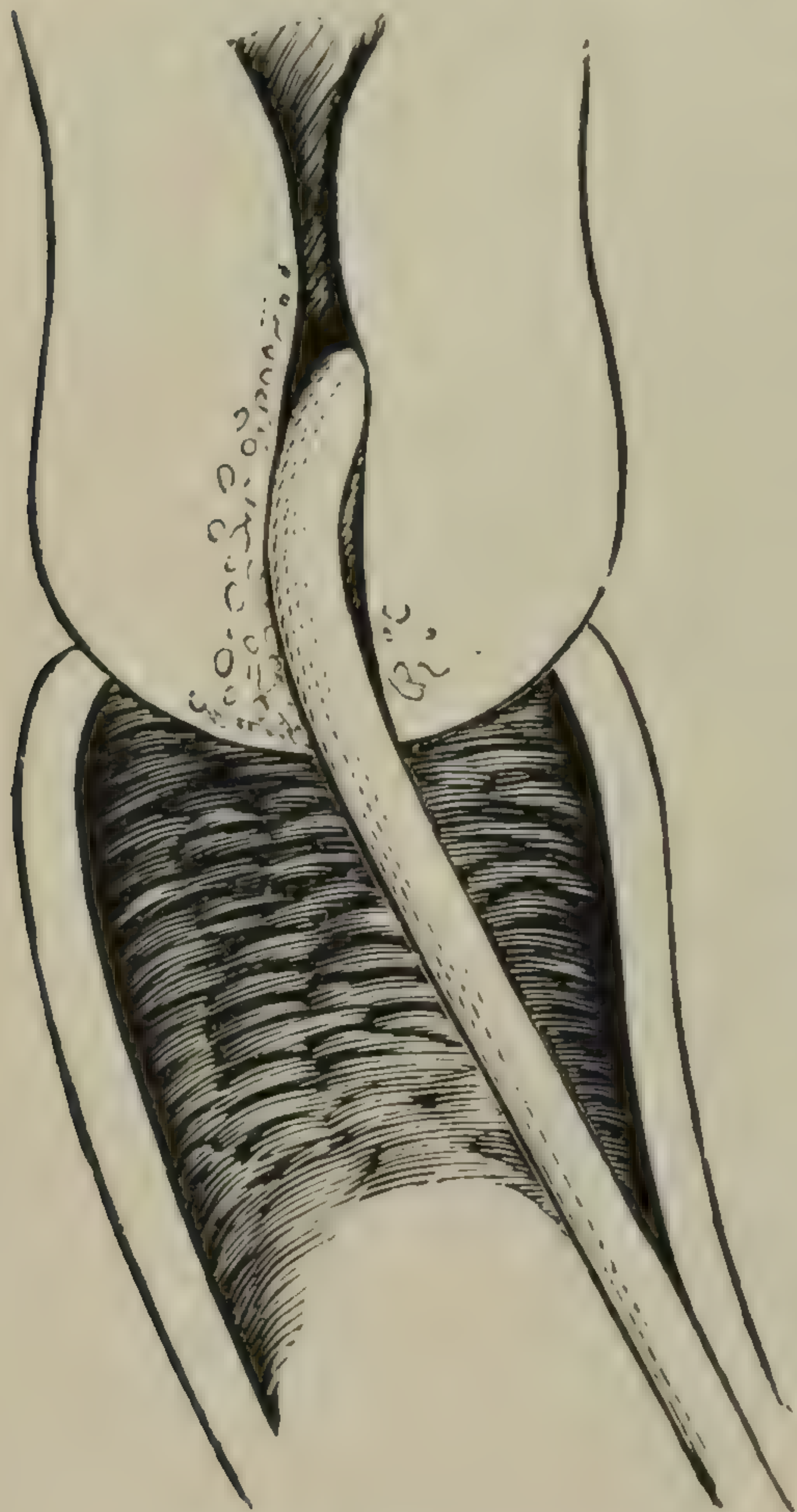
of irritation exist in the cervix, a flush of redness may be observed; and considerable mucus is exuded. Such a state always exists a day or two after menstruation. When inflammation of the uterine neck is present, with *endo-cervicitis*, the borders of the os are bright red, and much swollen, and a jelly-like mucus, tough in consistence, hangs from the aperture and reaches to follicles deep in the cervical canal. After the inflammation has existed for several months and is in a measure *chronic*, the neck of the womb becomes hypertrophied and indurated. In some instances the lining of the cervix bulges outward and exhibits its swollen mucous follicles; in others the orifice is surrounded by tissue almost as dense as cartilage. In all cases the characteristic mucus, tough and tenacious, protrudes from the os. If a wisp or swab be employed to entangle the gelatinous mass, the toughness of the discharge will be ascertained.

Now, in connection with these objective proofs of *endo-cervicitis*, there will be multiple subjective symptoms. There may be backache, a sense of heaviness in the loins and perineal regions, a feeling of weariness with languor and a depression of spirits—a lack of usual vivacity. The sufferer finds it difficult to appear cheerful—she acknowledges fits of melancholy, if not settled hopelessness. If assured that she can be cured, she is opposed to the proposed methods of treatment. She expresses a willingness to use a syringe; and desires to know why a vaginal douche will not reach and cure the womb disease. She prefers prolonged suffering to an examination as she terms the physician's manner of managing her case. She complains of woman's lot; and censures the plan of her organization. Well, at length she submits to the use of the speculum; and is surprised that there is so little exposure in the procedure. The speculum is introduced into the vagina, and the cervix uteri is brought into view without any part of the external genitalia being seen by the operator. A sheet thrown loosely across the patient's limbs and pushed behind the flange of the speculum, covers parts that would otherwise be exposed.

The local treatment for *endo-cervicitis* calls for applications of a favorite caustic or escharotic to the lining membrane of the canal of the cervix. It does little good to brush or swab the os tincæ with an astringent or caustic; the trouble is *within* the cervix, and can only be reached by sending a rod of glass or pencil of wood, which bears an escharotic, into the depths of the cervical canal. A wad of lint, charged with caustic, may be pushed into the canal of the cervix where it will impress the



morbid follicles, but the method is not as readily executed as is the introduction of a pencil of wood, curved a little near the



Treating Endo-cervicitis.

point. The accompanying diagram quite distinctly represents an enlarged cervix, and the depth the soft wood pencil reaches in the cervical canal. The stick is carried through a tubular speculum, made to enter the os uteri, and to penetrate to the depth of three-quarters of an inch. The entering end is dipped in liquid caustic just before it is pushed into the canal of the cervix. If much mucus be present, the pencil is to be withdrawn, wiped, again dipped in the caustic liquid, and re-introduced. The first application makes way for a more efficient activity of the second. A swab mounted on the end of a stick is now pressed against the os tincae to absorb any caustic fluid that might escape from the canal of

the cervix and make the vagina smart through irritation. The caustic application should be repeated at the expiration of five, six, or seven days. Nothing valuable is gained by more frequent applications; and something is lost by the lapse of too prolonged a period. At first, or before the curative processes are advanced, the introduction of the caustic-bearing stick may provoke bleeding or bring a show of blood, but after the treatment has covered two or three weeks, no bleeding will be provoked. In the course of time the size and induration of the cervix will be reduced, and the sensitiveness of the womb is lessened.

The first few local applications may be attended with some pain, but not subsequent ones. From the first the patient is decidedly better; and will go on improving until no distress is complained of. The glairy mucus of the cervical aperture disappears; and a sense of constriction in the womb will no longer be felt. The course of treatment has extended through a pe-



riod of two or three months; and the patient is desirous of getting rid of the expense and trouble of the weekly manipulations. And she may safely dispense with local medication for six months or a year, yet there is some liability to a return of the endo-cervical inflammation. However, after a season of exemption from treatment, she can return to it when symptoms indicate that the local applications should be renewed. The complaint is often made on the part of the patient that the cure is not absolute and permanent; but she is to be informed that the cause of the original disorder still remains, and will in time produce the same morbid states. As soon as the influences of child-bearing are over, there is rarely left a common endo-cervicitis.

I do not believe that one caustic is vastly superior to another in the local treatment of endo-cervicitis. My choice is chromic acid in saturated solution. It is not objectionable in odor or color; and its effects upon living tissues as a caustic, are desirable. A pencil of soft wood takes up enough of the caustic to make an efficient impression when carried to the morbid surfaces of the uterine neck. Carbolic acid in strong solution is also a favorite agent of mine to be used as just indicated. Iodoform is efficient, but its color and odor are objectionable.

Constitutional remedies are not to be neglected in the management of endo-cervicitis. Bichromate of potash may be given as follows:

R Water ℥iv.,  
Bichromate potash gr. j. M.  
S. Half a teaspoonful every four hours every other day.

In alternation the following may be given:

R Distil. Hamamelis ℥iv.,  
Fowler's Solution ℥j. M.  
S. Half a teaspoonful every four hours every other day.

The above agents have been administered with satisfactory results for a series of years.

If endo-cervicitis spring from the open state of the uterine canal that attends sub-involution, there is no better treatment for the pathological state than that already laid down. Although the entire endometrium is morbid, a caustic impression made upon the mucous surface of the cervix will establish a recuperative action which readily extends to parts above the region cauterized. In fact the hypertrophy which is a sequence of sub-involution is overcome by the local and systemic agencies just enumerated.



Cystitis and leucorrhœa are not uncommon accompaniments of endo-cervicitis, hence these morbid states must come into the general course of treatment. The cystitis may be cured by the internal use of the fluid extract of *Pinus Canadensis* and the tincture of *Belladonna*, an ounce of the former to a drachm of the latter—ten drops of the mixture in water constituting a dose to be repeated every four hours. Locally a fluid extract of *Veratrum viride* incorporated with vaseline, a drachm of the former to an ounce of the latter, forming a smear to be applied to the roof of the vagina every eight hours. Leucorrhœa can generally be cured with injections of a weak solution of sulphate of zinc.

In the management of endo-cervicitis the patient should be well nourished, and all sources of discomfort abolished. It is next to useless to attempt to cure a patient made miserable from a distressing environment.

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### ENDO-METRITIS.

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An operative gynæcologist of great experience recently said that there was no such disease as endo-metritis; but probably his remark was based on the fact that it would be rare for the endometrium to be inflamed without the womb itself being implicated—without *metritis*. The disease designated as peritonitis is not alone peritoneal inflammation, but enveloped structures partake of the morbid impression. When medical writers discuss endo-carditis it is not to be supposed that they have in view the lining membrane of the heart—but their attention is directed to the fact that the inflammatory action may be primarily and chiefly the endocardium.

When purulency of a gonorrhœal character flows from the uterine cavity endo-metritis exists, whether a master in gynæcology affirms or denies such a pathological state. Inflammatory action spreads from the vagina to the uterine endothelium, and even invades the lining of the salpingian ducts. In fact salpingitis is a disease quite likely to spring from the extension of gonorrhœal virus from the vagina to the somewhat remote organs.

If there be no purulent discharge from the uterine cavity, there may be inflammatory activity which discovers itself by the discharge of decidual debris in degenerate flakes. Wads of lint crowded into the canal of the cervix, and replaced from



time to time, will exhibit a discharge coming from the womb, and determine its inflammatory character.

In sub-involution of the uterus I have frequently discovered an inflammatory state of the lining of the womb; and when vegetations grow from the uterine mucous membrane, there is more or less endo-metritis. Then, again, when decaying masses of decidual debris choke the uterine cavity, some degree of inflammation of the endometrium is likely to exist; also when the putrid remains of a miscarriage linger in one of the horns of the womb.

In what is called a uterine catarrh with whey-like discharges, there is evidence of endo-metritis. A polypus or fibroid which worries the endometrium is sure to provoke inflammatory action, though no pus—an objective sign—be observed. In medicine absolute proof is not always at command; and we have to rely upon features and phases—upon inference, positive evidence being beyond our reach. In some inflammatory disorders there will naturally be observable a beginning, a culmination, and a decline, the three periods being somewhat emphasized, but in endo-metritis such stages are not always to be distinguished or differentiated. The causes of endo-metritis are often obscure or speculative, no provocation being within the scope of observation. An urethral inflammation, especially one of an apthous character might readily extend along the vaginal mucous membrane, and assault the endometrium through sympathy of continuity in structure. A vaginitis excited from any cause might extend to the lining of the womb. A thwarted or balked menstruation is followed by acrid discharges from the womb, and endo-metritis. Fungous invasions of the endometrium occur oftenest when the organ is somewhat enlarged, and the cavity is expanded. In a normal state of the unimpregnated womb there is not much space for air and fluids inside the organ, and it is more than probable that an open state of the womb favors endo-metritis. An open womb is apt to be hyperæmic, and given to hyperplastic conditions of the endometrium. The introduction of the uterine sound is, unless the implement be clean and manipulated with care, not unreasonably charged with exciting inflammatory action in the lining of the womb. The wearing of stem-pessaries is known to excite inflammatory action not only in the endometrium, but in the corporeal substance of the organ. Indeed, the neck of the uterus resting for days and weeks in the hollowed and hard end of a cup-shaped pessary



might provoke irritation, that at length developed into active inflammation.

Malignant growths within the walls of the uterus would be attended by the excitation of inflammatory action in the lining of the viscus.

Women intent on forcing a miscarriage will send skewers, whale-bone, knitting needles and other slender implements into the neck of the womb and inflict such damage that traumatic endo-metritis and metritis follow.

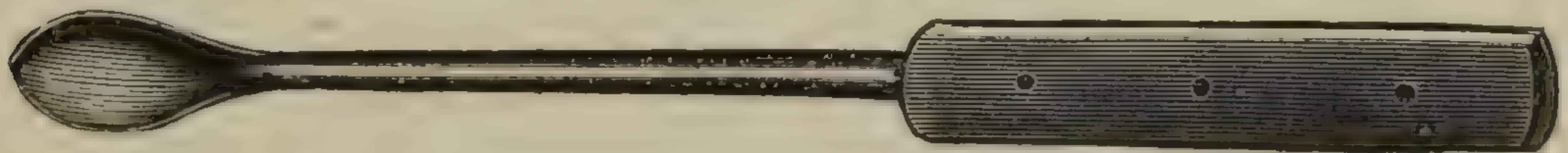
A sharp flexion of the uterus is competent, as a source of worry, to initiate chronic inflammation of the entire organ, and especially of the endometrium. Fluids secreted behind the acute doubling would be imprisoned in the cavity of the fundus, and become putrescent. To cure such a case would be to establish natural drainage by overcoming the flexion.

In the treatment of endo-metritis scrupulous attention should be given to *causes*. If the inflammatory action depend upon gonorrhœal extension from the vagina, not only is the vaginal canal to be purified of the specific virus, but the cavity of the womb is to be douched with clarifying fluids. There may be danger of exciting "uterine colic" by medicated douches, yet the peril can be ventured when the demand is urgent. I do not believe that the force of an ordinary intra-uterine syringe will throw a fluid through the Fallopian tubes. At any rate I have tried the plan on the cadaver, and failed to force fluid into the peritoneal cavity. I admit, however, that the result is possible under the pressure of a powerful stimulant. I concede that a profound shock is sometimes produced by intra-uterine injections, yet I think that gonorrhœal endo-metritis warrants somewhat desperate means. A vulcanized syringe with a long nozzle may be utilized to convey enemata into the uterine cavity. There are several ingeniously devised implements for injecting the cavity of the womb. Molesworth constructed one which carried a current inwards and returned the fluid; and the apertures in the nozzle were directed backward, so that in no event would the douche enter the salpingian canals. It would be difficult to improve upon the utility of the instrument. The medicaments to be thrown into the uterine cavity should seldom be of caustic strength, though quite strong solutions of nitrate of silver, sulphate of zinc, and the salts of copper have been injected without making dangerous impressions. I prefer to keep on the safe side, however, and employ warm injections not medicated higher than could be borne without pain on



ordinary mucous surfaces. Ten grains of salicylate of soda in four ounces of water will do to begin with; and if this strength be borne without smarting or shock, a solution twice as potent may be tried. The douche should be repeated daily, and the fluid be permitted to drain away at once.

The internal use of terebinthines, of thuja, of *pinus canadensis*, of sandal wood, or of copaiba, may prove advantageous, though either is to be used alone and in small doses. Three or four drops of tincture of thuja or of *pinus canadensis* constitute a dose, to be repeated every three hours. The use of leontin has been commended, as well as macrotys. *Viburnum* is an agent that has sustained a good reputation as a "tonic" in uterine catarrh. If endo-metritis arise from sub-involution, hot douches locally, and biniodide of mercury in the fiftieth of a grain doses every four hours, make efficient treatment. Acid solution of iron in two drop doses may be given in alternation with the biniodide.



Howe's Curette and Placenta Extractor.

Vegetations are to be scraped away with a curette, or destroyed with a suitable caustic. When the fungoid growths can be located, the curette can be successfully employed after the canal of the cervix has been dilated; but the implement can not be manipulated in a contracted space. Not much bleeding follows the use of the scraper. The injection of a solution of salicylic acid acts as an escharotic—the solution is to be a grain to the ounce of water, or two grains to an ounce of glycerine—the douche to be repeated every second or third day. A weak solution of chloride of zinc will do about as well; and I have employed the two agents in conjunction. The pain excited is not hard to endure. Sometimes there is no pain whatever, and at others it is more than commensurate with expectations. There is no way to determine in advance how much shock and nervous disturbance may be provoked by a uterine douche. In pronounced hysterical states an anæsthetic may be utilized, or chloral in advance. Assafœtida is a steadier of the nerves, and so is sulfonal, yet either is to be given several hours in advance of an operation.

Endo-metritis from polypus and vascular excrescences will subside upon the removal of the cause. Forceps, the curette,



Thomas' spoon and the scoop I devised to aid in the removal of a retained placenta after abortion, constitute the implements to be employed in the ablation of polypoid tumors and vegetative growths, as well as the *debris* of miscarriages.

Malignant growths should not be pronounced upon until it be certain that the development be cancerous. I have removed vascular excrescences from the womb that were not malignant though declared to be such by practitioners learned enough to know better, and should have been more prudent. There is nothing easier or more common than to make a mistake. I confess to having committed several in the course of my somewhat long life.

In several instances I have diagnosticated syphilitic endometritis, and treated the cases successfully with systemic remedies. In one case the woman had imparted secondary syphilis to parties holding illicit relations with her. There was a turbid discharge from the womb which proved virulent to contaminate. An anti-syphilitic course of medication for a few months cured the specific endometritis. I prescribed mercuric bichloride one day and acid solution of iron the next. Elixir of cinchona formed a vehicle for the display of the mercuric bichloride and from a sixth to a sixteenth of a grain may be given at a dose.

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### METRITIS.

Inflammation of the womb is not an uncommon morbid condition. A state of sub-involution after miscarriage is generally attended with more or less metritis. The organ is congested, hypertrophied, supersensitive, and inflamed. The discharges from the organ are profuse and offensive; a sense of prolapsion is present; and the bladder is irritable, with a disposition on the part of the worried organ to discharge the urine frequently. Marital relations are accompanied with pain, and a languid feeling is present. There is an inclination to sit or recline, and an aversion to exercise on the feet. The jolting of a carriage is especially distressing. There is a sense of heaviness in the pelvic region which is increased by exercise on foot.

The unmarried, among women, may suffer from metritis that comes from menstrual disorders. Retention of the menses is a common cause of corporeal metritis,—endo-metritis initiating the more general disturbance.



The presence of a coagulum in the uterine cavity, or the retention of a putrid placenta after miscarriage, is enough to establish inflammation of the uterus, adjacent structures participating. Puerperal peritonitis generally begins in metritis. The cause is septic material within the uterine cavity.

Wounds of the uterine canal, from surgical traumatism, or from abortive implements, may be followed by metritis; and the use of stem pessaries may establish an endo-metritis which eventuates in corporeal inflammation of the womb.

Chronic metritis is not very uncommon, if we may judge of that state by pain, tenderness, congestion, hypertrophy, and offensive discharges from the cavity of the organ. The presence of septic substances in the horns of the womb has provoked metritis and general zymosis.

The treatment of inflammatory states of the uterus is to be governed chiefly by causes. If a flexion of the organ be provocative of inflammatory action, the abnormality is to be overcome; if septic substances be imprisoned in the womb's cavity, an attempt at removal should be instituted, such as dilatation of the cervix, the use of douches, scoops, and kindred measures. Even vaginal douches will, if administered quite warm, lessen inflammation of the uterus. Very warm enemata in the rectum serve to mitigate inflammation of the pelvic viscera. Even warm sitz baths have accomplished appreciable good in this direction.

Anodynes thrown into the rectal cavity lessen cystitis and metritis. To benumb an organ which is inflamed, is taking a therapeutical step in the right direction. An anodyne suppository in the vagina at night has imparted a favorable influence. Opiates given by the stomach do some harm as well as indirect good, though the opium treatment of puerperal fever is not without able champions. Morphine is now administered hypodermically, therefore we hear less of anodyne medication in the management of puerperal peritonitis; but only the stomach is saved from the nauseating effects of the drug by the hypodermic method of administration. A quarter of a grain of morphine injected under the skin has about the same constitutional effect as when taken by the stomach.

Uterine flexions and displacements, as causes of metritis, are to be treated after methods described under special headings. The daily use of a "fountain syringe," with water warm or cold to correspond with age and the nervous impressibility of pa-



tients, is a valuable adjuvant in the treatment of chronic or acute metritis.

Rest in bed has proved one of the best courses to pursue in the management of both acute and chronic inflammations of the womb. The patient takes to her couch with protests, yet soon admits that the course is the right one. She improves so fast under *decubitus* that acquiescence in the rule is not attended with protests.

Then, again, the patient is to have a good appetite and a nutritious diet. The bowels are to be kept in an easy state of action, and the kidneys are not to be subjected to stimulants.

In acute metritis, a hypodermic injection of morphine in the hypogastric region and a liniment of turpentine should be considered. Dry heat imparted through the frequent renewal of hot dinner plates, is to be commended.

All dense organs, as the uterus, ovaries, testes, and prostate, are slow to be impressed medically, hence too much must not be expected in a day's treatment.

Fomentations of hops are comforting when applied to the hypogastrium in acutely sensitive states of the womb, yet the liquor stains clothing and bed-linen.

If the intestines be distended with gas, I insist upon the administration of broken doses of sulphate of magnesia, and an enema of oil with turpentine. As soon as gas moves, pressure on the sensitive womb is lessened. Attention to the smaller details of nursing is worth more than heroic medication. A woman who is impatient—in a mental worry—is not in the best condition for a speedy cure.



## SECTION VIII.

UTERINE DISPLACEMENTS.

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If we would contemplate the degree of stretching, or amount of expansion, the peritoneum may undergo, we have only to consider the amplitude of a hernial sac which reaches to the knees. The round ligaments of the uterus do not hinder prolapsion of the organ, and the sacro-uterine and the utero-vesical (pubic) ligaments do not actively oppose descent, therefore the *broad ligaments*, which are duplicatures of peritoneum, are chiefly instrumental in sustaining the womb in its normal position. The connective tissue and fibrous interlacings with adjacent viscera, contribute a modicum of support, yet they are subject to laxity, doing little to prevent prolapsion, or deviations from natural poises.

Not all displacements of the uterus are damaging enough to demand efforts at correction; and not all of those which produce discomfort can be wholly remedied. Besides, if the means of relief be attended with cost and some annoyance the sufferer may decline professional ministration. Not infrequently women will endure excruciating pangs in preference to undergoing examinations necessary to ascertain the cause of agony.

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UTERINE PROLAPSION.

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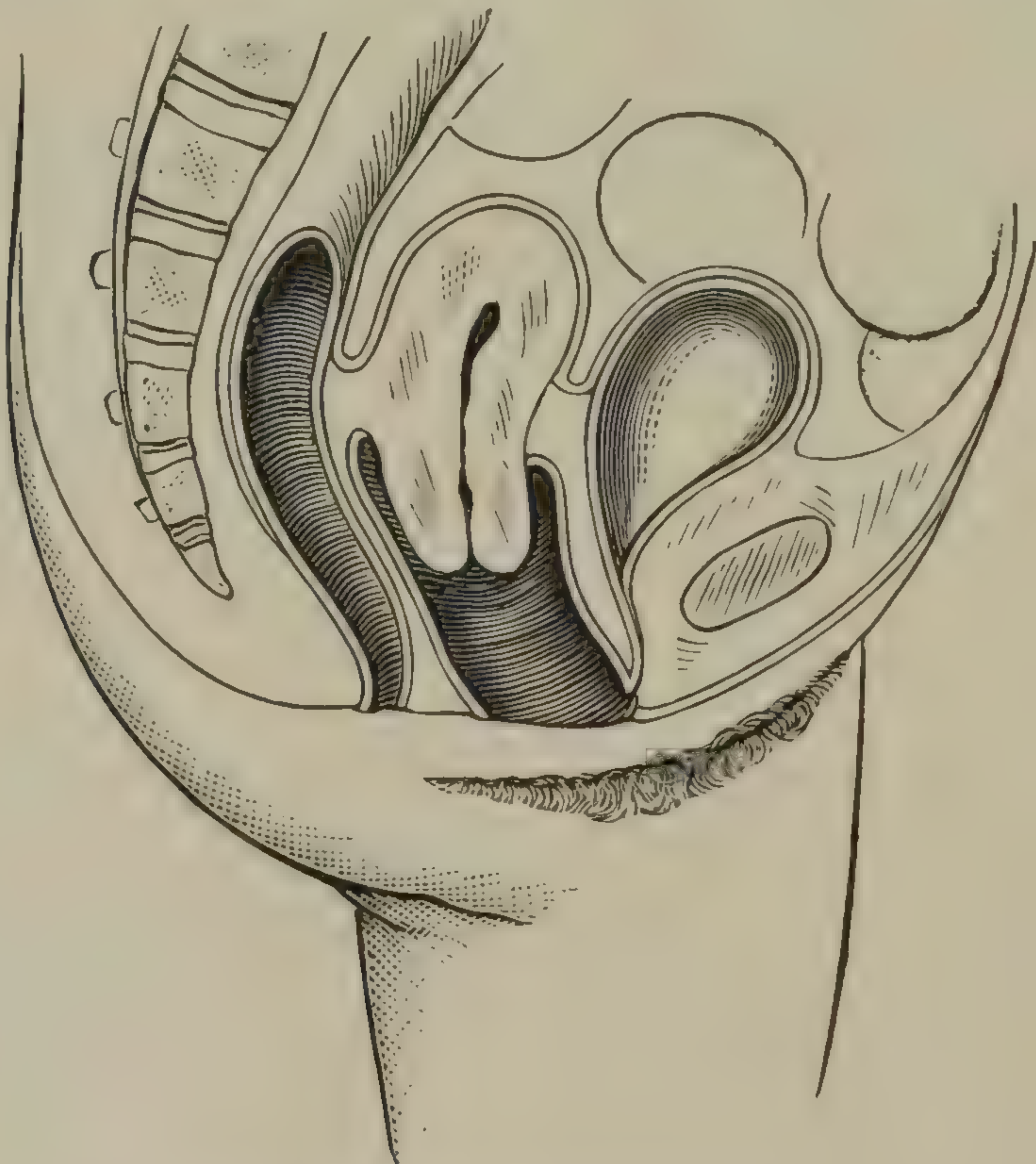
The commonest uterine displacement is prolapsion, the organ descending until its lower extremity reaches the perinæum, or attains a low point in the vagina. In extreme procidentia the cervix appears in the vulvar aperture. A young woman in mixed company may, through lack of opportunity to evacuate the bladder, retain the urine till the distended organ overtops the uterus and crowds it downward to an extent that a return to its normal place does not occur when micturition removes the depressing agency. Carrying the urine too long is a common cause of uterine prolapsion and retroflexion. The difficulty may be temporary, yet unless relieved or overcome the infirmity may become lasting and aggravated. A dislocated or displaced womb



is to be replaced early, or a tendency to remain out of place is acquired.

In not rare cases uterine prolapsion does not depend upon laxity of supporting ligaments, but upon a crowding downward of the abdominal viscera. Folds of intestine press upon the pelvic organs, the stress being increased by corsets and the weight of dragging skirts. In autopsies the stomach and transverse colon have been found below the brim of the pelvis. Then, again, a general laxity of fibre may prevail to such an extent that the muscles and fascias constituting the floor of the pelvis may exert less than normal support, and thereby permit perinæal descents.

Not infrequently the bladder descends with the womb, constituting a complex lesion which disturbs the functions of the entire pelvic viscera. A woman with a prolapsion of the womb and bladder may have trouble with evacuations of the bowels, as well as disturbed micturition. The pelvic organs are so intimately associated that one can not suffer without each viscus participating.



First degree of appreciable Prolapsion.

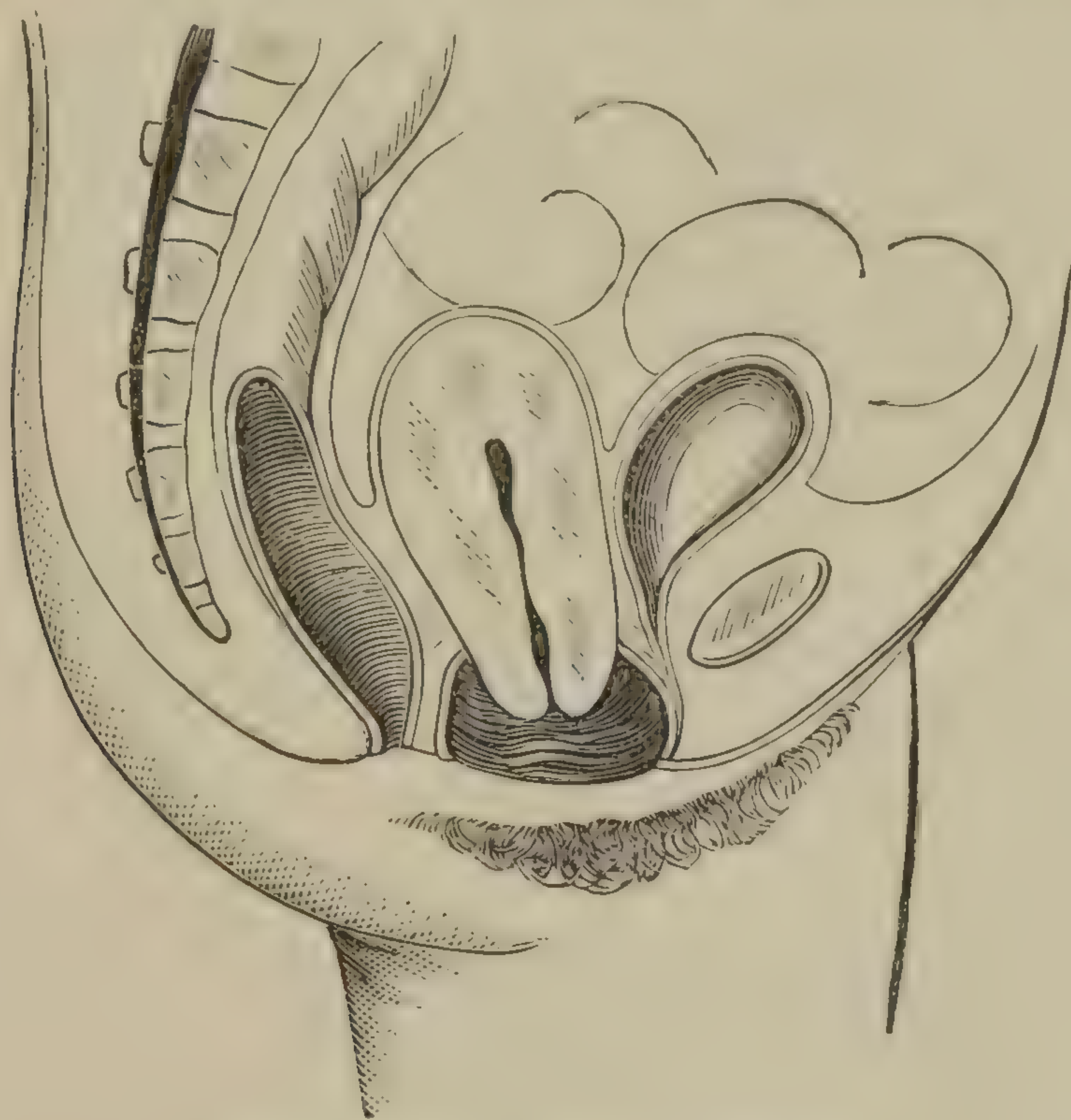
Married women who have borne children rarely have the womb hang high in the pelvis, yet a slight descent need not necessarily be attended with suffering. The womb hangs lowest when the woman is standing on her feet, hence in that atti-



tude a digital examination may be made to ascertain whether the lower end of the uterus rests upon the perinæum. If she rest on her back or side when a digital examination is made, the womb may rise above its normal position. The introduction of a vaginal or tubular speculum may push the womb upward, so that a prolapsion is not revealed.

In making up a diagnosis it is well to recognize at least four degrees of descent. The first is readily appreciable to the digital touch when the patient stands erect.

The neck of the womb descends into the vagina, deepening the fornix or sulcus around the descended cervix. This degree of descent is appreciable to the digital touch ; and may be attended with some discomfort to the patient. The accompanying diagrams were constructed to illustrate the several stages of prolapsion which are to be considered. The first degree may not need any treatment unless considerable suffering be endured.

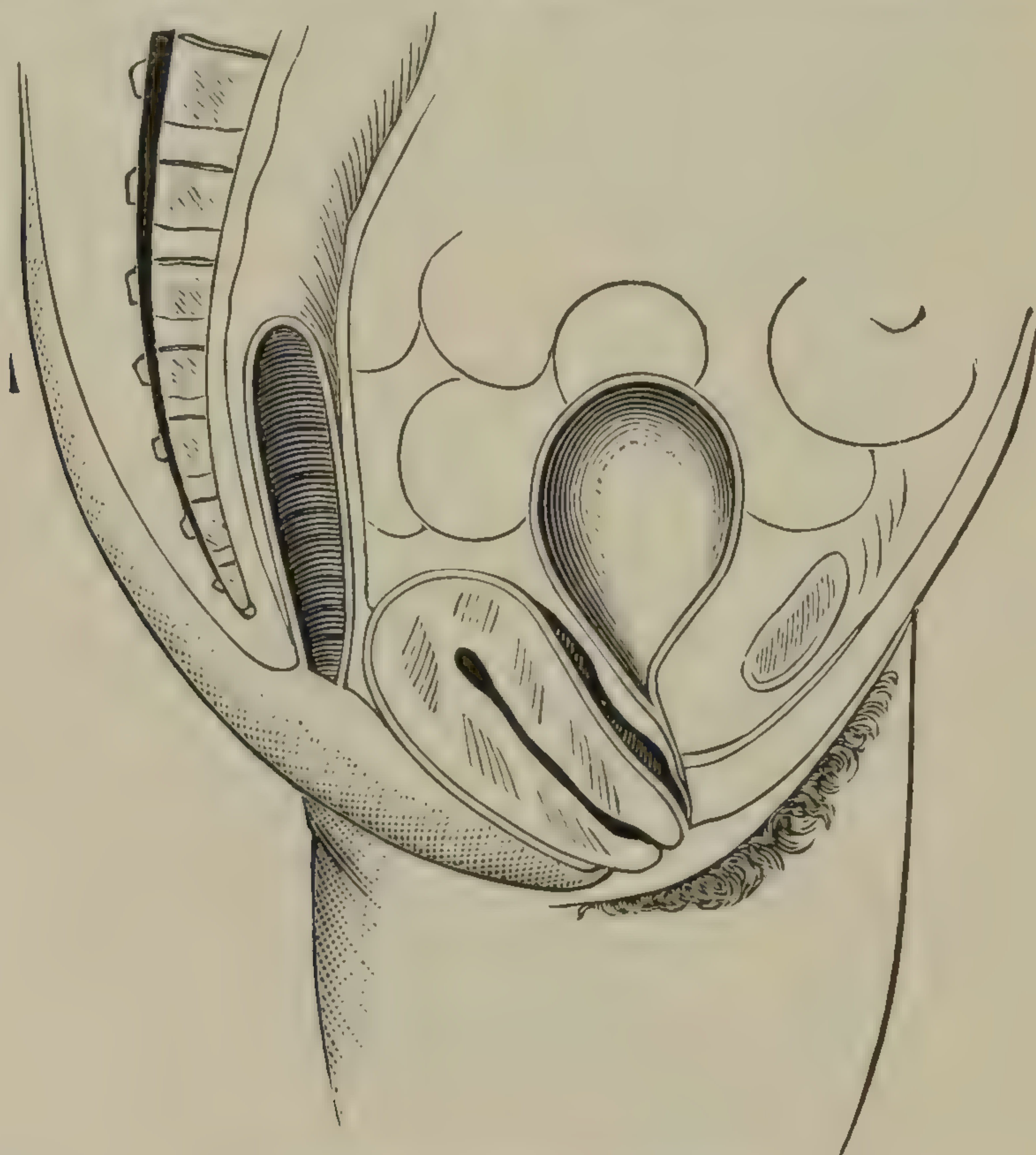


Second degree of Uterine Prolapsion.

For such a state I should not advise the use of a pessary, but the injection of water into the vagina twice a day. The douche may be of warm water, and thrown in with a piston syringe or a compressible bulb and a soft hose instrument. What passes as a fountain syringe is an excellent implement for administering a continuous flow of fluid. If leucorrhœa exist as a complication, an astringent wash may be employed with a piston syringe.



The second stage of uterine prolapsion is represented in the foregoing diagram, the lower end of the womb reaching to the floor of the perinæum, and interfering somewhat with the functions of the other pelvic viscera,—with defecation and micturition. The patient feels uncomfortable from the low hanging uterus; and learns to obtain some relief by pushing the organ upward with the finger. However, the ease thus obtained is not lasting unless a support of some kind be utilized,—unless a pessary of some variety be employed. The most practical to be inserted into the vagina is constructed of a strip of canton flannel. A piece fifteen inches long and three inches wide can be pushed through a short vaginal speculum by the



Third stage of uterine Prolapsion.

intelligent patient. A little instruction enables her to treat herself. The speculum is to be of large calibre, and inserted into the vagina after the womb has been pushed upward, the implement serving as a transmitter of the folds of fabric as they are crowded into the space between the perinæum and the uplifted womb. As the folded wads are pressed into the depths of the vagina the speculum is gradually pulled outward, until the folded cloth takes the place of the implement. After the pessary of flannel has become packed and unpleasant, the end of the strip of cloth is to be pulled upon to effect removal. A



fresh tampon is to be used every morning, and the old one may be removed upon going to bed.

A physician would employ a blade of the duck-billed speculum while inserting the tampon—pessary; but the patient must use the tubular instrument.

The third stage of prolapsion is when the lower end of the descending womb rests in the vulvar aperture, and occludes the passage. The displaced organ has the cervix presenting forward, and the fundus rests against the rectum; and the functions of both bladder and bowel are restricted by the dislocation. Besides, the woman is made very uncomfortable by the decided displacement. It seems to her as if a foreign body were resting in the genital fissure and filling the vagina,—to say nothing of a dragging sensation in the pelvis which is exceedingly annoying to the sufferer.

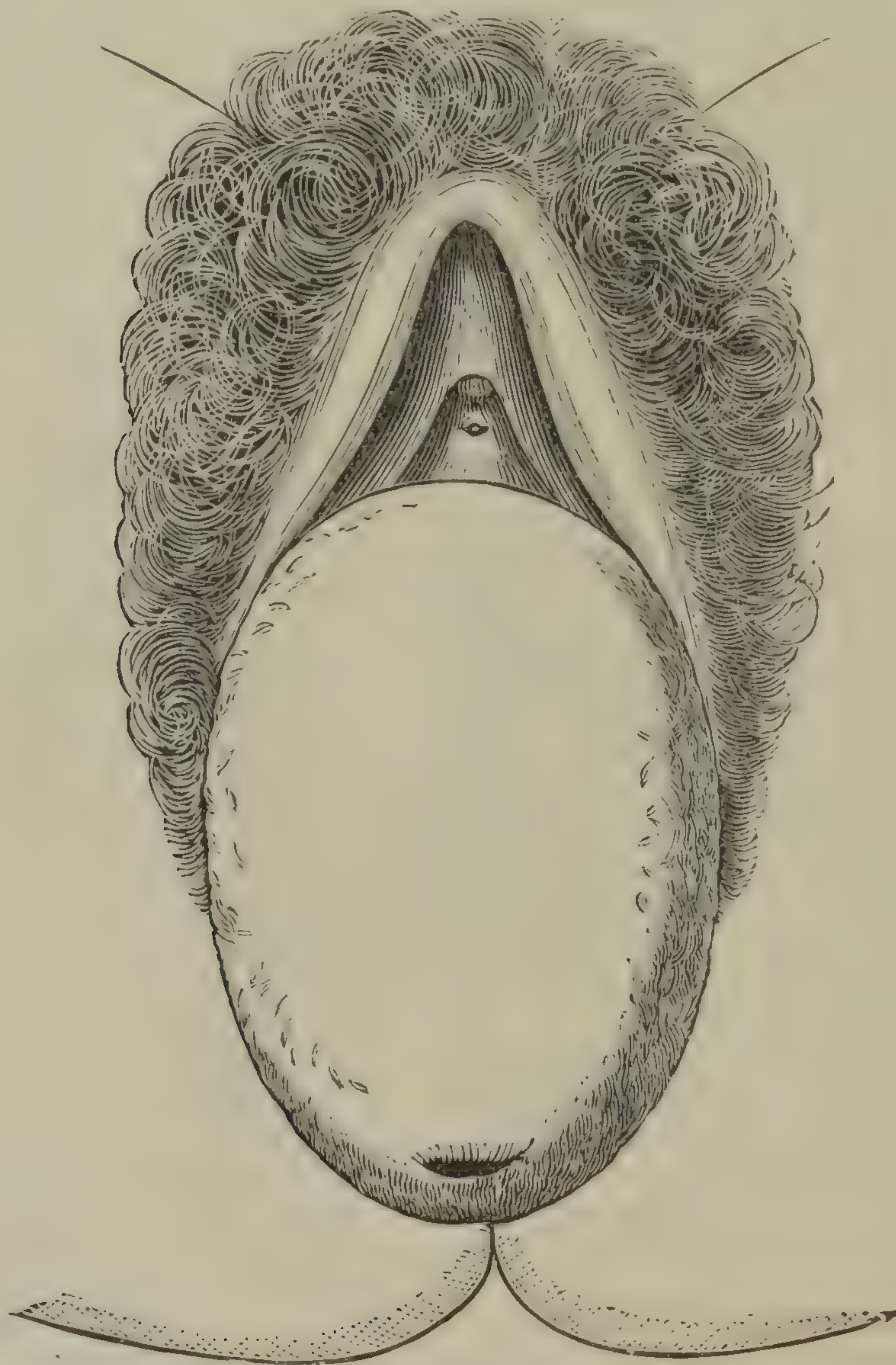
The third degree of displacement is sometimes followed by a fourth, in which the womb goes clear into the world,—is extruded from the pelvis,—is literally hernied. All of the organ is seen except the very apex of the fundus. The extruded organ appears like an inverted womb, but at the lower end the os may be seen, and the canal of the cavity may be explored with a sound. The Fallopian tubes, bent upwards, may be felt with an exploring finger. As the urine flows from the urethral meatus it pours over the “tumor” and causes a most uncomfortable irritation. During a catamenial *nisus* the menstrual blood becomes a source of worry. There are few greater misfortunes that happen to a woman than complete uterine prolapsion. In a case that lately came under my observation and treatment the prolapsion was extreme. The patient was a working woman who was without means of paying for an operation, therefore she consented to appear before the class of the Eclectic Medical Institute,—to become a clinical beneficiary. When the woman laid on her back the womb could, under firm pressure, be pushed back into the cavity of the vagina, but it would not stay there except under continued pressure. Neither a truss pad nor pessary would retain the womb within the pelvis.

To remedy this defect closure of the vulvar aperture suggested itself. This operation is sometimes called colporrhaphy, though that term signifies an operation to constrict the walls of the vagina. The accompanying diagram faithfully represents the prolapsed uterus. The meatus urinarius maintained its normal position; and the woman had no difficulty in voiding



urine, except a smarting which came from excoriations here and there on the surface of the tumor.

After the patient had been anæsthetized with chloroform, I pushed the womb into the pelvis; and an assistant with a blunt implement held it there while I, with toothed forceps and scissors, snipped away the labia minora, freshening the aperture



Complete uterine Prolapsion—a sketch from life.

clear round, except at the upper or anterior commissure. At that point I left enough uncut space to have a drainage aperture for the discharge of fluids coming from vagina and womb. After the freshening process was completed the lateral walls were brought in contact with silver sutures placed less than a quarter of an inch apart, beginning the seam at the posterior commissure of the vulvar fissure. The following cut fairly represents the suturing. The healing process made a barrier



strong enough to resist the downward pressure of the womb. In other words, the uterus was incarcerated within the pelvic cavity and is there retained without discomfort or inconvenience. The operation was a success in every particular; and made an unfortunate patient comfortable and happy. The sutures were cut and removed on the twelfth day. During the healing pro-



Vulvar aperture closed with sutures.

cess a catheter was used three or four times a day to prevent urine from falling on the seam, and the wound was washed with the use of a syringe twice a day. The bowels moved voluntarily twice during the healing of the wound.

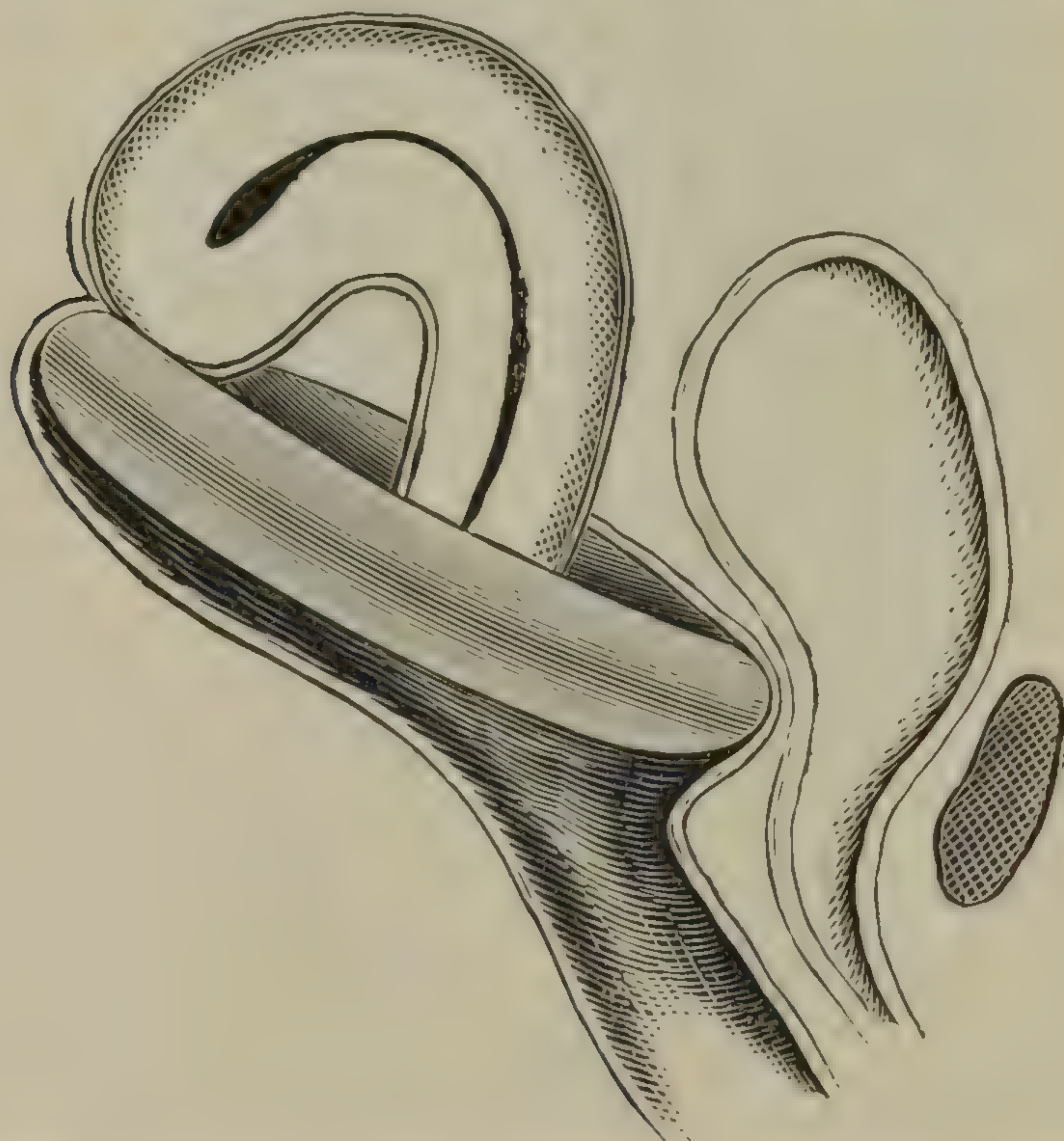
The operative procedure is not difficult to execute, but is not always a complete success. In other words, the upper part of the wound may not heal. However, if the operation prove a partial success, a compress may be worn against the vulva, and



held in place with perinæal straps which reach to a belt around the hips.

In cases where the prolapsion is only partial and easily replaced, a supporter with a perinæal pad will accomplish all that may be desired. An ingenious woman can make an apparatus which may do better than a costly one sold at the shops.

Fleshy women advanced in life, whose abdominal viscera crowd the uterus into the world, or nearly so, have to be treated with disk pessaries made of glass. I have had extra sizes made for such patients. The largest are three inches and a half in diameter. They are concave in the upper aspect to receive the neck of the uterus; and have an aperture in the middle for drainage. Such pessaries, once introduced, are worn with ease



Large Pessary in situ to counteract prolapsion and retroflexion. It is discoid and concavo-convex.

and comfort. They are lubricated and inserted flatwise through the vulvar aperture, then turned as they enter the vagina, so as to receive the uterus in the cup-like cavity. The perinæum has to be depressed with considerable force as the implement passes the ostium vaginæ. Otherwise the urethra would be bruised. The accompanying diagram represents a glass pessary, discoid in shape, which resists prolapsion and retroversion. It is large, yet easily worn. It should be removed every few months, and freed of any calcarious deposits that may have formed on it. The implement does not impinge enough on the bladder and rectum to interfere with the functions of those organs.



Various kinds of pessaries have been devised to cure or overcome the various degrees of prolapsion. One is a balloon, made of rubber, with a piece of hose to admit of inflation. The small cut represents the bag and pipe. It is to be introduced



into the vagina in a collapsed state, and then expanded by blowing into the end of the pipe. The inflation may be sustained by knotting the hose. The inventor regarded an air-bag as the easiest cushion the womb could rest upon. I have not used it extensively; and do not commend it in

Balloon Pessary. the highest terms.

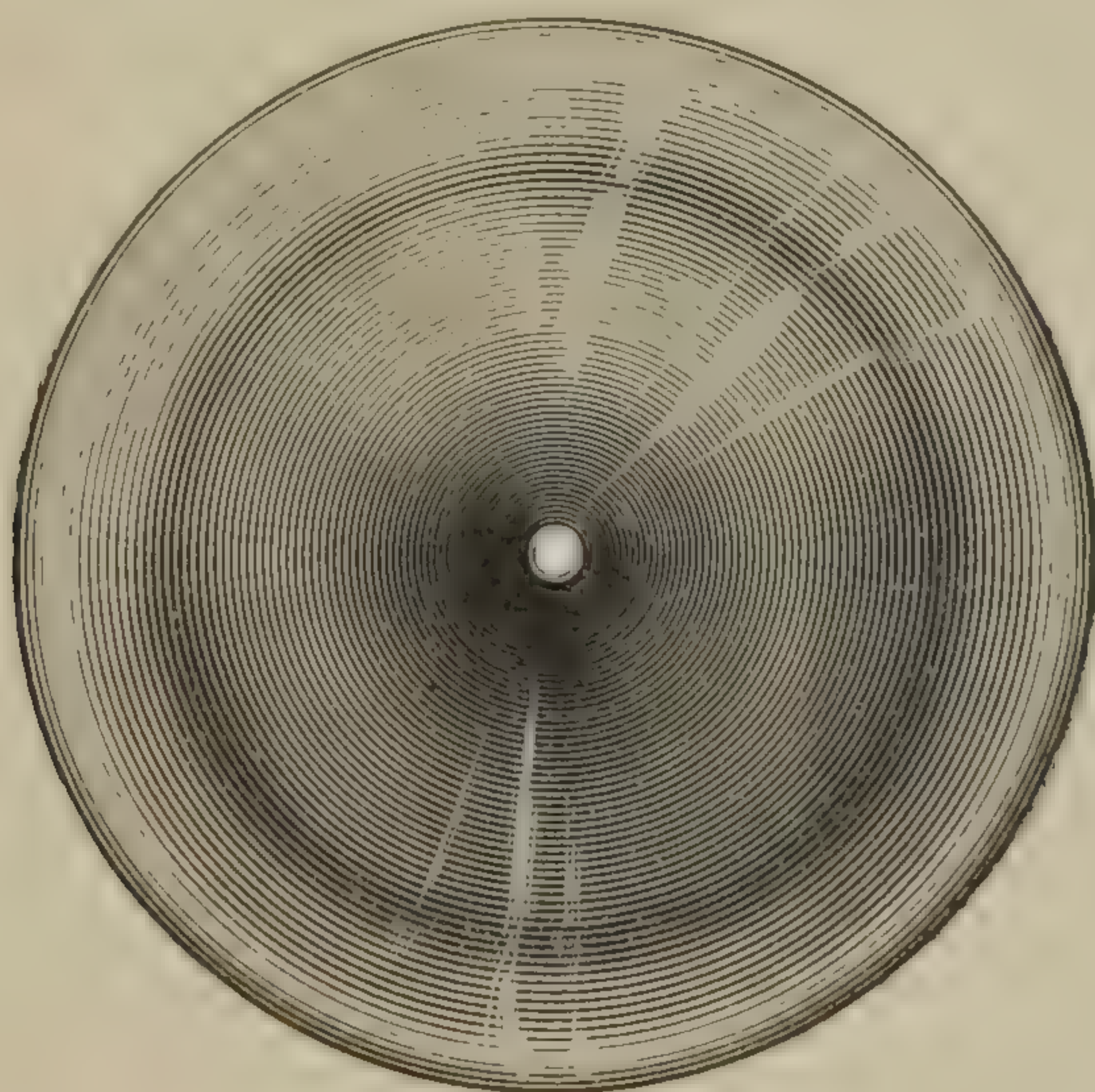
A hard rubber lever pessary, such as the accompanying diagram depicts, can be utilized in the treatment of moderate prolapsion of the womb. It is to be lubricated, then sent through the vulvar aperture flat-wise, and turned in the course



Lever Pessary which can sometimes be utilized to advantage in the treatment of prolapsion.

proper size, and well inserted, is worn without discomfort, and generally with curative effect.

of insertion so that the broad lip shall look backward and upward, and rest against the rectum. The narrow end rests against the neck of the bladder, yet the extremity turns downward so as not to interfere with micturition. The implement, if of

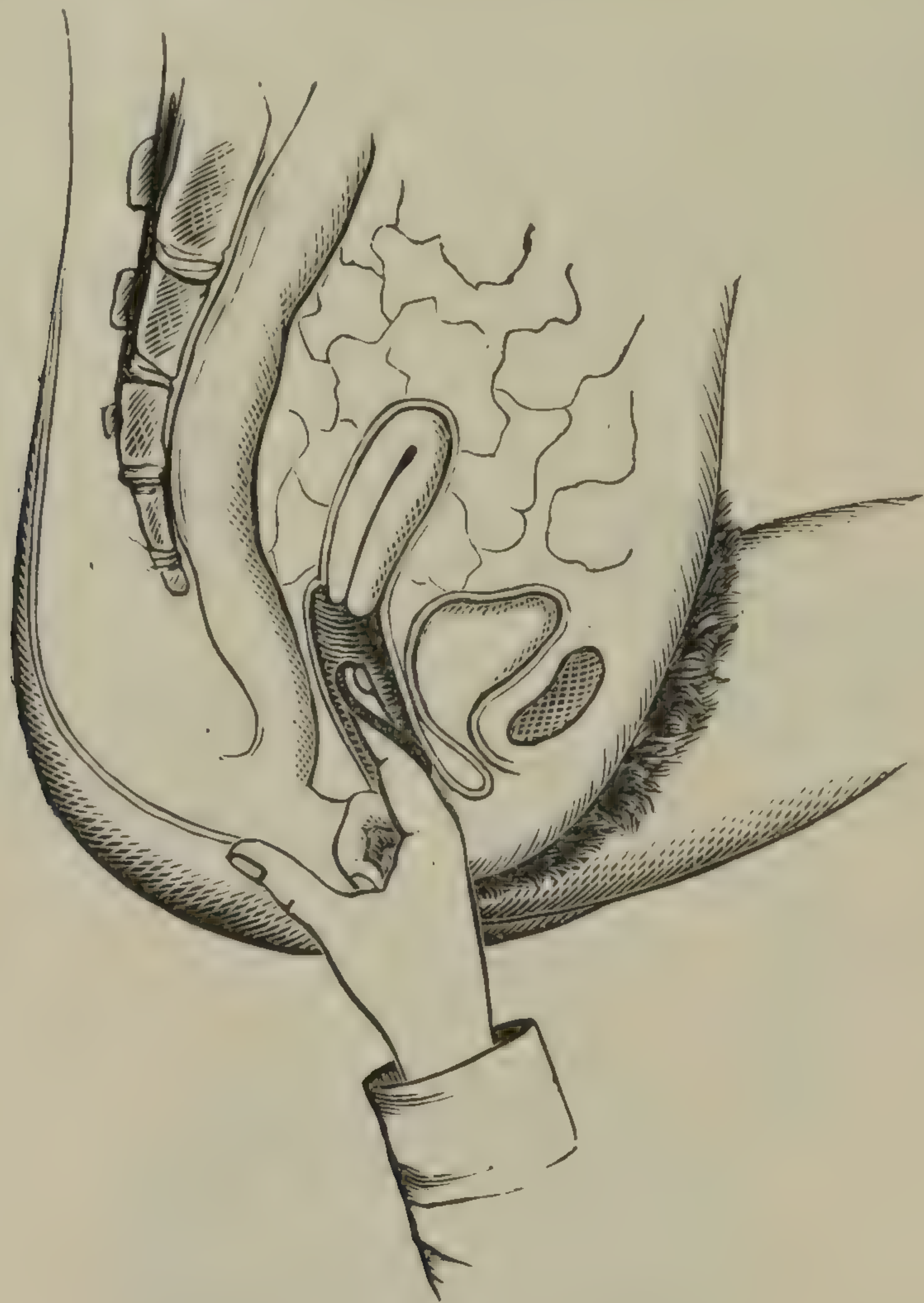


Hard rubber Disc Pessary.

A pessary circular in shape and constructed of hard rubber, and made light and smooth, is to constitute a variety in a gynaecologist's stock of implements for correcting uterine displacements, especially moderate prolapsion. Several sizes should be at command. If the implement be too small it will not be



retained in the vagina. As before stated the perinæum is to be depressed when the pessary is inserted, or an unpleasant pressure will be made on the urethra. If the fourchette have been torn in labor no pessary will stay in place, therefore a cure of a uterine prolapsion depends largely upon a surgical restoration of the lacerated perinæum.



Method of applying a Lever Pessary.

The accompanying diagram shows how to apply a Hodge, Smith, or Thomas pessary for correcting uterine deviations. The inexperienced in the insertion of pessaries may get a valuable suggestion from the illustration. The finger in the bow of the largest end of the implement carries it to the posterior fornix of the vagina, and plants it there. The anterior and smaller end readily falls into position. The patient rests on her left side in a flexed attitude while the operator inserts the pessary. If the implement be too large an uncomfortable feeling is provoked; and if too small it will leave its place and be lost. A sudden impulse, such as comes from a cough or sneeze,



is calculated to dislodge a pessary. In old cases of prolapsion, with the vagina shortened, and its walls converted into a steep declivity, no pessary will stay in place without a perineal pad and hip support.

It is plain that if a pessary excite worry and discomfort, it is to be thrown aside, or substituted with a better fitting one, or with a preferable pattern. It requires patience and experience to make a pessary do what is demanded of it. To throw an implement aside, and condemn its use, is easy, but not always wise.

The treatment of moderate prolapsion by the use of systemic remedies, and astringent washes is to be commended as conservative and curative. The woman who is brave to endure ills, and ambitious to be well, is the one who recuperates fastest.

While child-bearing is declared to be the cause of uterine prolapsion, preventives of conception and miscarriages are worse. Nature's course is generally the safest and best. The marital state may be damaging if abused, yet moderate indulgence in conjugal relations is physiological and wholesome.

A good digestion combined with a variety of choice foods, is restorative. I have not much faith in "tonic bitters," yet a "viburnum cordial" may prove quite recuperative as a stomachic.

I have known an "abdominal supporter," whether home-made or a device of the shops, to prove quite comforting. The cup-pessary and abdominal belt of McIntosh has afforded substantial relief. The neck of the prolapsing womb rests in a wooden or metal cup, and a supporting lever imparts an upward lift. I have heard women say that they could not walk a square without the support afforded by the instrument.

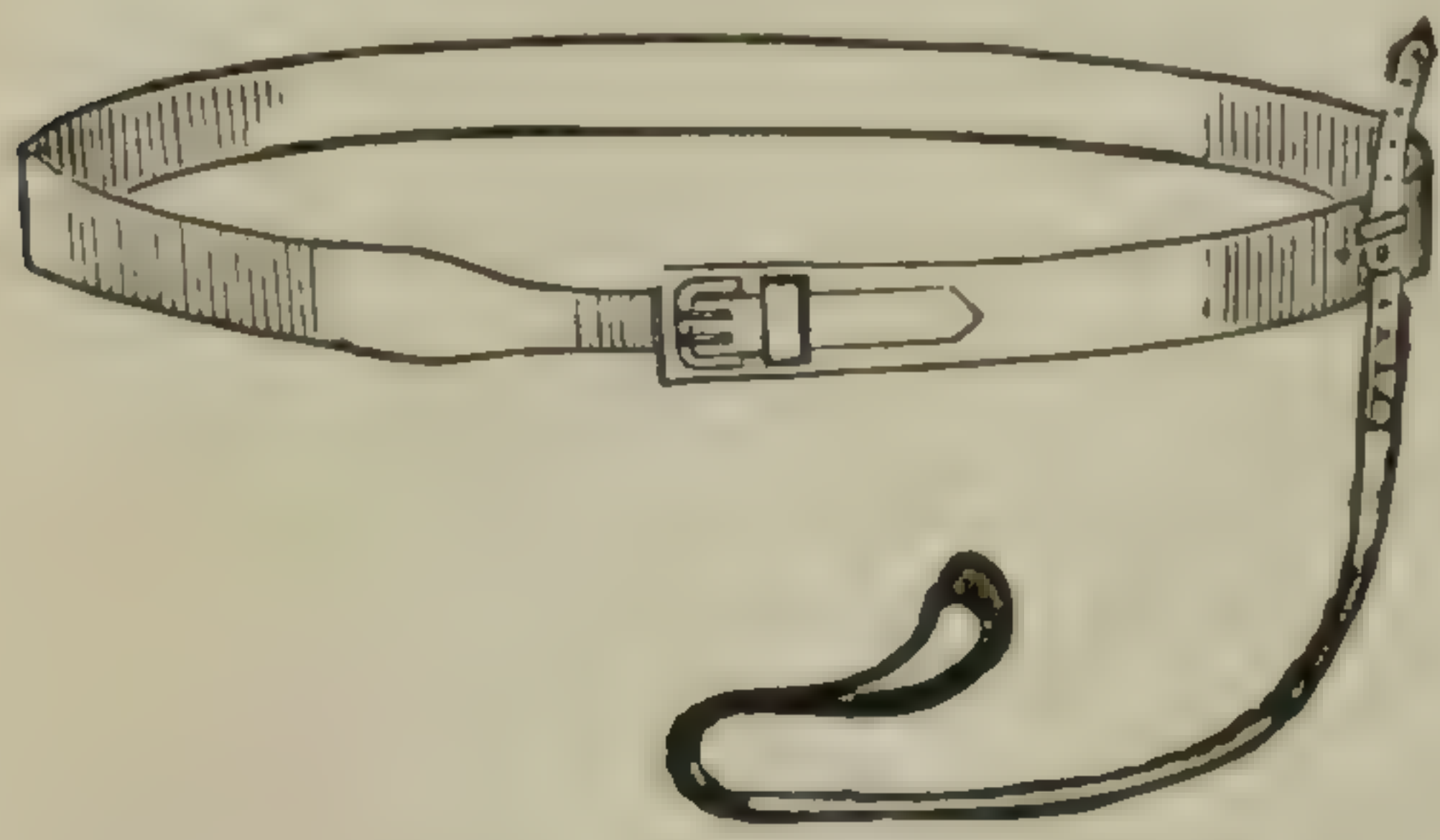
A stem pessary is commonly an abomination. It provokes endo-metritis, and irritability of the pelvic viscera.

"Mother's cordial" of Kings Dispensatory is a medicine which once was in repute among Eclectic practitioners as a vaginal and uterine tonic; and if once good, why not now? I have never been acquainted with a better medicine for leucorrhœa and vaginal flabbiness.

"Acid Solution of Iron" is one of the very best peptics and tonics I have ever administered. It imparts color to the lingual papillæ, and sharpens the appetite. Then if oysters be utilized as a dietary article, eggs and horse-radish, lamb-chops and mint, toast and olives, fish and game, and other palatable food in abundance, a lean, anæmic, irritable, querrulous and



worried woman, will cease to be miserable, and contribute a bountiful share to the happiness of the household.



Cutter's Pessary and Supporter, for the treatment of prolapsion.

The delicately bred women of America are slight, trim, and attractive, yet easily break down under the strain of house-keeping,—becoming old prematurely. Robust health is more enjoyable and lasts longer, therefore the exercise which begets an appetite is a curative

agency. A woman should not forget that her feet were made to walk upon; and that exercise on foot is wholesome. Let walking and lunching in a reasonable way or to a sensible extent be encouraged,—made fashionable.

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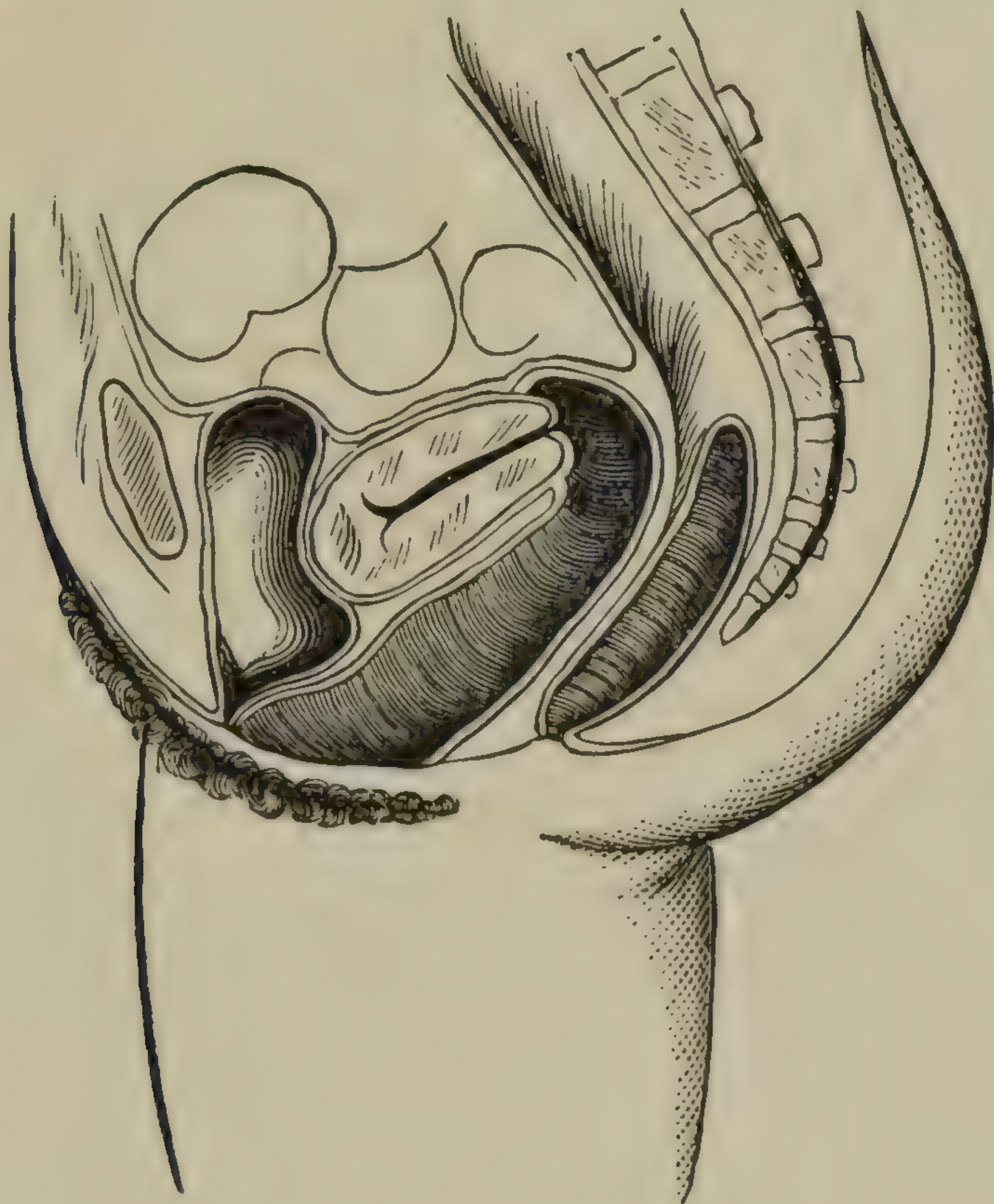
### UTERINE ANTEVERSION AND ANTEFLEXION.

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Two malpositions of the uterus are common and similar in character. *Anteversion* is a forward inclination of the fundus of the womb, and a backward trend of the cervix, there being no flexion of the organ. The fundus approximates the symphysis pubis, and the cervix the hollow of the sacrum. *Anteflexion* is a doubling of the uterus upon itself, both fundus and cervix approximating the pubic symphysis. Anteversion to a moderate extent is normal, but anteflexion is a malposition. Anteversion to a pronounced extent is abnormal, and needs treatment as much as anteflexion. If the normal forward incline of the virgin womb become exaggerated a little, a mal-position is entered upon, and may not stop in its tendency till an extravagant degree of distortion has been reached. Anteflexion of the virgin cervix is almost always observable when the gynæcologist has occasion to make pelvic explorations. Autopsical examinations of virgin wombs reveal the cervical anteflexion cited. Anteversions come from enfeebled states of the body—from inactive habits—from lax muscular states—and from weak structural tone that come from lack of methodical exercise. The young woman who is naturally lazy, and regards physical effort as degrading, is liable to lapse into states of indolence and inactivity that precipitate uterine displacement.



While an over-distended bladder occasions retroversion and retroflexion, vesical distention may produce extreme ante flexion by having the extreme vesical top crowd the fundus of the uterus downward and forward. Such a state of displacement I have observed. Instead of producing retroversion or prolapsion, the womb is doubled upon itself. As the bladder rises in the pelvis it gets above the uterus, and at length jams the fundus of the organ downward and forward, making an acute angle in its body.



Uterine Anteversion.

The pressure of corsets on the abdominal viscera, together with efforts with the body in a flexed attitude, may give a forward pitch to the uterus. Pregnancy, sub-involution, neoplasms, tumors, fortuitous bands, tension of the utero-vesical ligaments, and defective tone in the uterine tissue, may contribute more or less to anteversion and ante flexion. Coughing, sneezing, and expulsive efforts, may induce a forward inclination of the womb. Ovaritis and salpingitis, and accumulations in the Douglas *cul-de-sac*, would push the fundus of the uterus in a forward direction, and hold it anteverted or ante flexed.

**SYMPTOMS.**—A certain degree of abnormal anteversion may exist without any appreciable discomfort; hence the malposition may exist for years without the patient suspecting any



such condition. However, the pressure of the os against the recto-vaginal septum—against the rectum and hollow of the sacrum—tends to distresses of various kinds; to impaired function of the bowel, to dysmenorrhœa, to sterility, and local worry; and the forward inclination of the uterine fundus irritates the bladder, and leads to cystitis. A displaced uterus is apt to be attended with pelvic congestions and paroxysmal tenesmus of both bladder and bowel. It has been observed that patients with malpositions of the uterus are disinclined to exercise to an extent compatible with the best of health. To indulge in a paraphrase, “a womb to be easy must be in the right place.”

Before professional attention was given to uterine displacements, and to the discomforts hinging upon malpositions, sufferers continued bed-ridden for years and years who would now be cured by the use of properly selected and adjusted pessaries. The statement is substantiated by the fact that women are now enabled to get upon their feet again who have been helpless invalids for long periods, and who fall into relapses as soon as the supports are removed. A uterus which has once assumed a malposition will not soon acquire the ability to stay *in situ* when replaced. To return an anteverted or anteflexed womb with a sound or repositor, is to impart a temporary benefit; but there must be offered a brace to insure continued support; hence a pessary is naturally suggested, especially as no medication, local or systemic, promises relief. If anything would cause contraction of the utero-sacral ligaments—any douche or enema, any local or general tonic—a curative effect might be logically expected. But, as the matter stands, medicine fails to act restoratively, hence relief is to be looked for in mechanical props. Pregnancy, through the physiological evolution gestation imparts to the womb, carries the organ out of vicious versions and flexions, and enforces a new environment—an altered state of circumstances. Inasmuch as pregnancy can not always be advised, and is so often impracticable, this source of recovery is problematical.

As has been suggested, anteversion may be partial or complete; and in progressive states may be unknown and not especially disturbing. Anteversion may exist only a part of the time, a distended bladder correcting displacement. Anteflexion, on the other hand, is not generally modified by vesical fillings and emptyings. In complete anteflexion the manifestation is apt to be continuous, the conditions of the bladder not modifying the acuteness of the angle.



In anteversion a digital examination does not find the uterine cervix where it ought to be, but away back in the hollow of the sacrum. In a hunt for the womb's neck, the finger may be carried through a wide range before the object of search is reached. The fullness in front may lead to the suspicion that it has been forced above the pubic arch, yet no distinct neck is found. The lateral regions are empty, and only a deep exploration in the posterior depths of the pelvis discovers the displaced neck. In the malposition it is not easy to carry the sound into the uterine cavity, unless its entering end be bent into the shape of a hook; and even then the implement does not pass without adroit manipulation. If the fundus of the organ be lifted upward with the finger, the cervix will be tilted into its normal position. However, if the malposition be of long standing, and fortuitous bands of neoplastic tissue bind the organ in an abnormal pose, neither the finger nor other implement can overcome the obliquity or mal-attitude.

In a diagnostic manipulation the bladder should be explored with a sound, and the degree of uterine encroachment determined; and this point is not so readily ascertained as might be supposed. If the fundus of the uterus has long impinged upon the vesical space, the bladder may have risen above the womb—may have become elongated. A segment of the vesical viscus may extend into a deep sulcus between the body and cervix of the anteflexed uterus, and mislead the operator who is manipulating a sound, making him believe that either a benign or malignant tumor exists in the region. However, a grasp of the cervix uteri with vulsellum forceps, and a downward pull, will straighten the organ and permit the entrance of a sound to its cavity. Then a catheter in the bladder may be made to explore its entire cavity, and ascertain its dimensions. It does not seem possible that a diagnosis of either anteversion or anteflexion can long evade the intelligent investigator. While the diagnostic exploration is going on, the patient may rest upon the back or the left side, with the legs flexed. The gynæcological table is convenient for the patient to rest upon while undergoing an investigation.

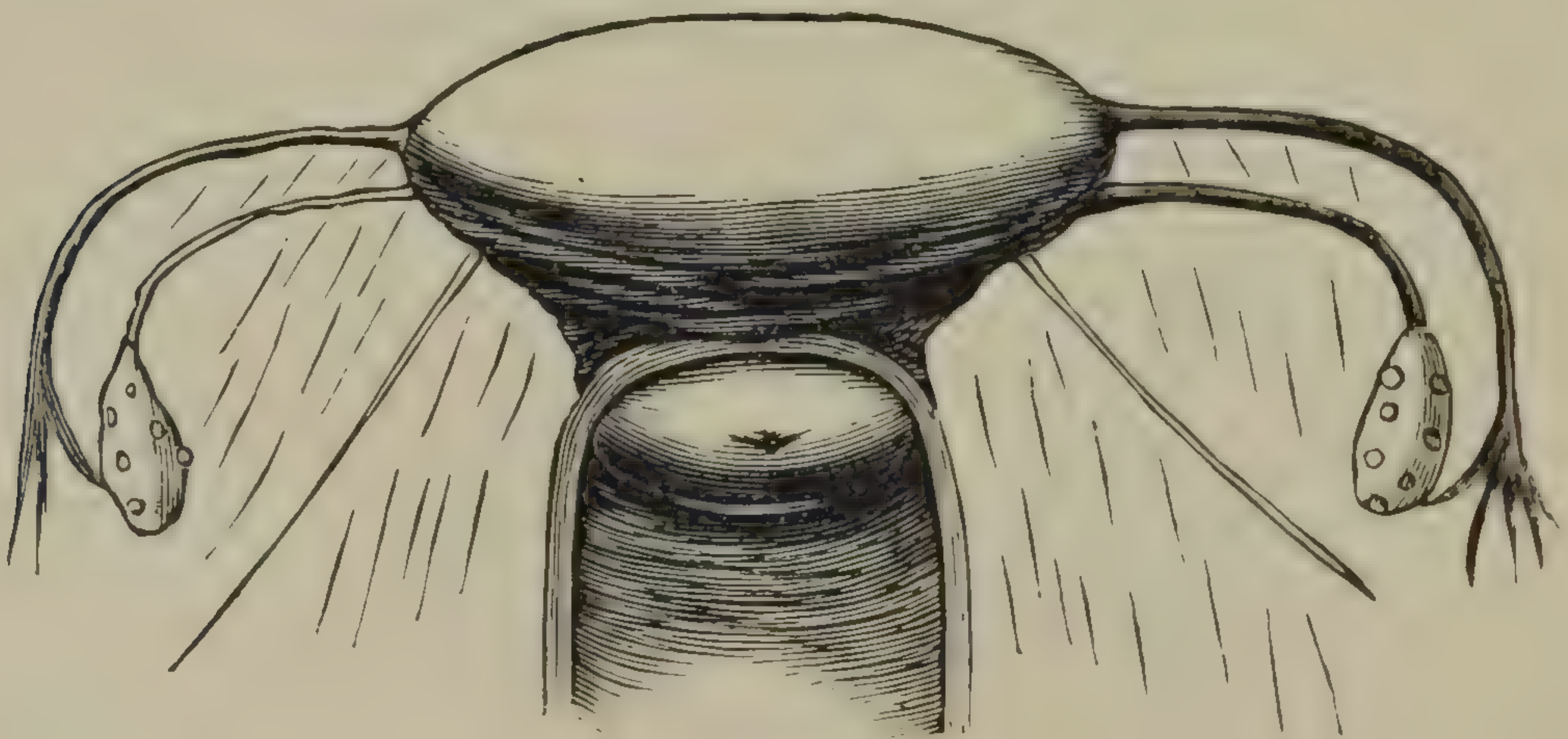
The operator is to make a clear distinction between anteversion and anteflexion. By the latter malposition the womb is bent so that the cervix and fundus look forward, or to the symphysis pubis. The bending forward may be of the neck, of the fundus, or of both. In marked anteflexion the doubling is complete, the fundus and cervix approximating each other. The



deviation varies in different subjects, but degrees of suffering may not depend upon the angle manifest in the flexion. The womb may be bent in its middle or above or below that point, without materially affecting the disability.

There is a compound of flexions where the cervix is anteflexed, and the fundus is turned backwards, giving the course of the uterine cavity an inverted **S** shape. I have encountered this in several instances, though I have not seen it depicted nor described. The organ appears lax, limp and flabby, permitting complex flexion; seemingly it could not support its own weight.

The distress arising from anteflexion comes in part from the enforced congestion, the acutely bent organ being unable to free itself from blood. This produces pain in the back and loins, cystitis, leucorrhœa, and pelvic tenesmus. Sequences will be dysmenorrhœa, sterility, and painfully sensitive vagina. The reflex symptoms will be neurasthenia, nervous paroxysms, despondency, locomotive aversion, dislike of carriage jolting, a solicitous state of mind, flatulent dyspepsia, and constipation or diarrhœa.



Uterine Anteflexion.

The physical or objective signs of anteflexion will be the pointing forward of the cervix and fundus uteri, the vesical space being encroached upon. A hand upon the hypogastrium, while a finger is in the vagina, will, by pressure towards each other, feel the doubled-up womb. By this manipulation the sensitiveness of the organ can be ascertained. Then, again, if the patient rest on her side a Sims speculum may be utilized to assist in the introduction of a sound within the cavity of the womb. The probe measures the depth of the organ, and makes manifest its sensitiveness, as well as its mobility and fixedness. I am not in favor of using the uterine sound where there is no



call for its employment, but in exploring flexions the implement is invaluable. If the flexure can be temporarily taken out of the womb without a sound, there is a prospect of permanent cure; and nothing can be prognosticated till the sound has developed the nature and extent of the difficulty.

Anteflexion in a nulliparous womb is not so easily manipulated and treated as the deformity is in women who have borne children. In a case of congenital anteflexion—a not uncommon complicity—the hope of cure is not flattering. If anteflexion be the result of salpingitis,—gonorrhœal or otherwise,—the prognosis is unfavorable, for neoplastic adhesions are likely to exist. The management of anteflexion, as already intimated, depends upon a variety of conditions. Bad cases are incurable, while the greater number are moderate in character and remediable. If the malposition depend upon an old cellulitis, ulceration, or traumatism of some kind, as the sequence of instrumental labor, the prognosis is far from flattering.

To replace an anteverted or anteflexed uterus, a sound or repositor of some kind must be employed. The uterine canal must be permeated to its utmost depth with the implement, and a tilting force exerted to restore the normal pose of the organ. If physical restoration can be accomplished there is a strong probability that the organ may be compelled, mechanically, to stay in place. Bimanual manipulations are commended in attempts to replace anteverted and anteflexed wombs, but I have succeeded most satisfactorily with the help of a steel sound which has a broad handle. When once introduced into the depths of the uterine cavity the control over the organ is wonderful. Unless fixed in false positions by fortuitous bands, the organ must come into its proper position. If the womb can be restored to its normal attitude a pessary may be employed to keep it in place. At least, a tendency to restoration can be established. But to bolster up an anteflexed or an anteverted womb requires pessaries eminently adapted to do the work required of them. The would-be gynæcologist who buys two or three pessaries as a stock to select from in the management of a version or flexion will be likely to condemn the use of pessaries altogether. He is sure to meet with unsatisfactory results, and will blame the implements instead of his lack of tact or skill. This is common in all branches of medicine. The practitioner who has had little experience with obstetrical forceps is the one who soundly anathematizes them. The thera-



peutist who knows practically nothing of surgery is likely to berate surgical methods.

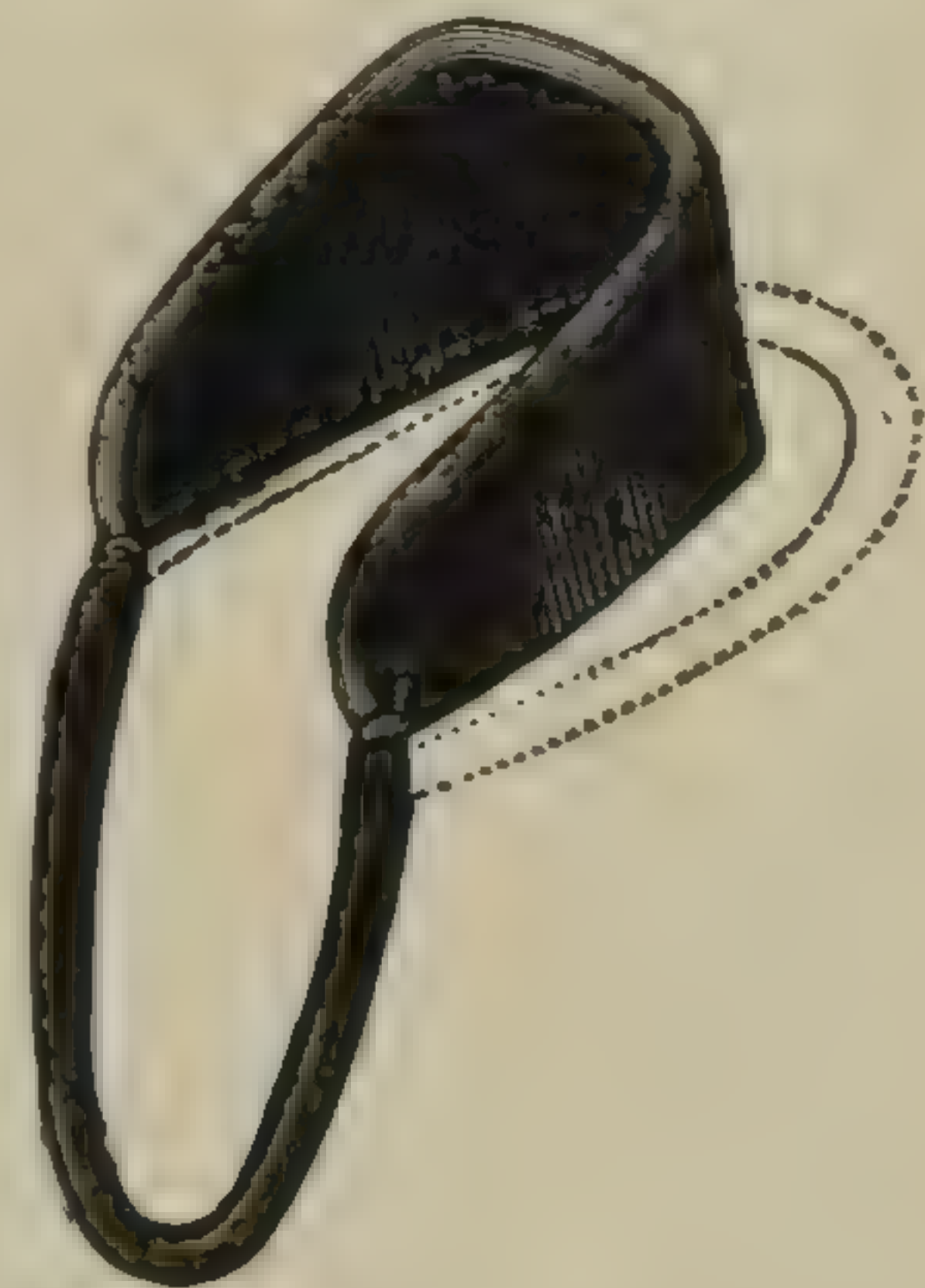
While wads of cotton-wool may be crowded into the vagina to help support a prolapsed or retroflexed womb, such ready contrivances will not push an anteverted womb into its normal position. In fact it is likely to aggravate the difficulty. In a case of anteversion the in-going wads of lint—textile pessaries—crowd the cervix back into the hollow of the sacrum, and hold it there. And in anteflexion the fibrous wads can do no good, and may prove damaging by getting behind the body of the womb and pressing it forward. The wearing of abdominal supporters can not antagonize the displacing influences, but may contribute to the permanency of the malposition. If we consider the dynamics of an abdominal belt or corset, we shall fail to discover the force which restores or tends to restore an anteflexed womb. However, an elastic abdominal supporter which passes below a protuberant belly and exerts a lifting activity may help an anteflexed womb into an upright position. Such a mechanical support may be made by an ingenious woman. The supporter should be constructed of stout drilling, and plied with gussets, so that the tension is greatest along its lower border. An “abdominal supporter” of the kind is for sale, but it is somewhat costly and no better than a home-made affair.

The use of stem-pessaries is not to be commended for practical reasons. An implement shaped like a tupelo-tent, and inserted in an anteflexed uterus, necessitates a straightening of the organ; but the insertion is difficult, and the retention uncertain. An implement like a tent will exert no restoring influence to an anteverted womb, unless the support to the stem project from the genital fissure and be fastened to a pad made to rest on the hypogastrium. A stem-pessary of the kind should be covered with lead to obviate irritation and corrosion. A trouble with the instrument is that it is liable to be displaced, and the patient is not competent to re-introduce it. She is obliged to engage the services of a professional expert every time the stem gets dislodged.

The Thomas anteversion and anteflexion pessary is esteemed as the least objectionable of any yet devised. It is made of hard rubber, with a jointed ring to tilt forward after insertion. The body of the implement has a cup in which the cervix rests, and an elevated crest in front to press the utero-vesical septum upward. The posterior and fixed ring presses the cervix backward, and the extra or hinged ring, when closed, abuts upon pubic

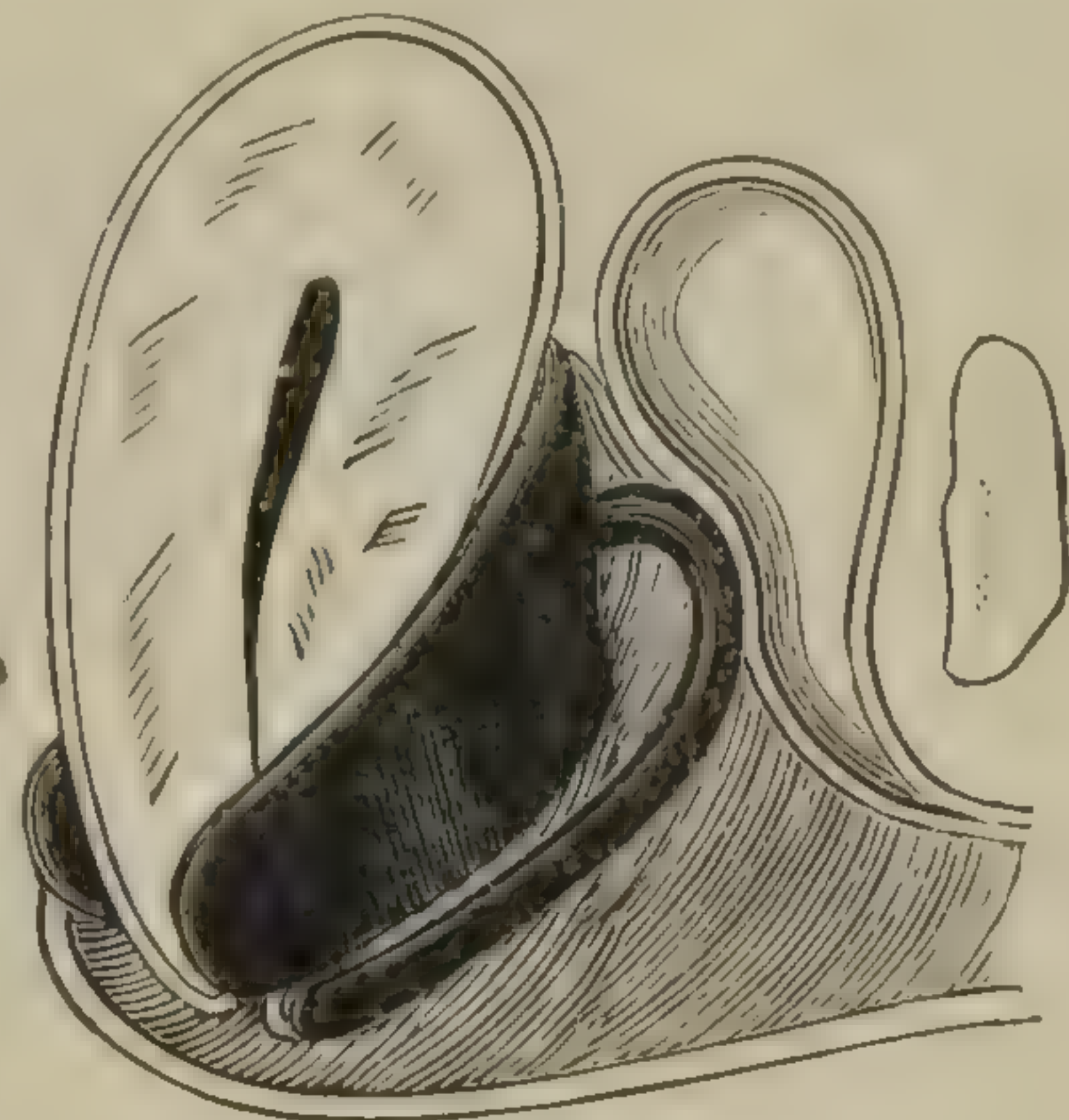


structures, and in a lever-like way compels the utero-vesical crest to tilt the fundus of the womb upward and backward. To say that the Thomas pessary is all that may be desired, would be an extravagant statement; but to grant that it does some good in selected cases, would not be conceding too much. If it do not restore the womb to its normal poise, it renders the flexure less acute, and thus relieves a forced congestion—a pronounced factor in the curative scheme. It is to be considered in the employment of Thomas' anteflexion pessary, that the size of the implement should conform to the space to be occupied; and that it shall not irritate the bladder. And while worn the patient is not to stand, or walk too long at a time; and she is to wear shoulder-straps to keep the weight of skirts from the abdomen.



Thomas Pessary open for introduction.

In managing a bed-ridden patient, the mind is to be favorably impressed as well as the uterus. There is apt to be hysteria mixed up with uterine displacement; the patient craves sympathy to a morbid extent, and is not averse to being a topic for social circles. She enjoys being considered a great sufferer, and the notoriety of being under a doctor's care. She suffers paroxysmal pains in all parts of the body. If one region be relieved with fomentations, anodynes, or massage, a fresh attack has to be treated in another. The variable character of the assaults insinuates that no well defined ailment exists.



Pessary in place.

But a cure depends upon doing something—perhaps upon wearing a disagreeable pessary. The medical man is to encourage the sufferer to make an effort to get up and gently exercise; and if he exert a controlling influence over his patient, she will take courage and astonish herself as well as her friends.



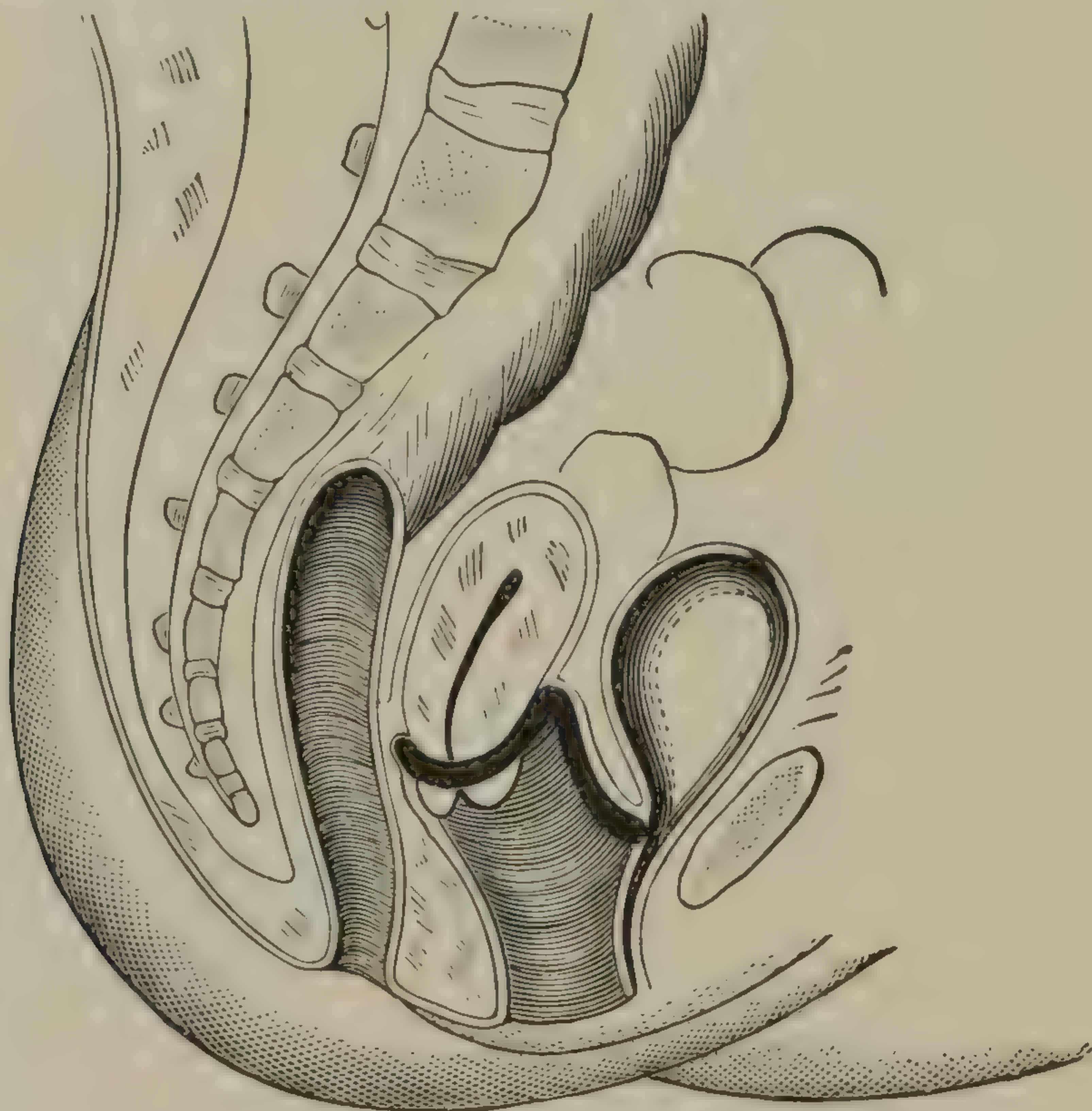
Thomas elastic anteversion Pessary.

The elastic pessary of Thomas is to be employed when the hard rubber splint is worn with discomfort. The implement has the advantage of being introduced and removed by the patient. It is always to be taken out at



night, and inserted in the morning. The instrument is constructed of wire and whalebone, then covered with india-rubber. It is elastic, yet will resume its shape when left to itself.

The Graily Hewitt pessary is a useful instrument to employ in the treatment of anteversion, and may be made to do good service in anteflexion. It is also an excellent support in prolapsion and retroversion. The posterior part of the flexed ring holds the cervix firmly yet easily in position; the upward or angular flexure wedges between the bladder and uterine fundus, and the anterior portion rests against the pubic structures. I prefer an incurvation which, in its anterior extremity, curves forward more than the one credited to Hewitt. The anterior extremity may have a backward turn to avoid pressure on the urethra.



Graily Hewitt Pessary in situ.

There are, in full displays of pessary stock, a score of patterns for correcting uterine versions and flexions; and some of them combine commendable features, but all embrace faults. The most pronounced objection to the entire lot is that not one practitioner in ten knows how to apply a pessary to the best advantage; and only a few gynæcologists have patients enough to give them experimental knowledge. Without an extended experience in the use of pessaries, the *abuse* of the implement can not be appreciated. The reader of Bantock "On the Use and Abuse of Pessaries" will call to mind his introductory words, and marvel at the contradictory opinions cited. He says: "There is proba-



bly no subject in the whole range of gynæcology on which so much difference of opinion exists, as that of uterine displacements. So varied, also, are the views as to the value of mechanical appliances in the treatment of uterine deviations, that, while on the one hand many eminent gynæcologists regard pessaries with great favor, others equally eminent, but *in smaller number*, are as much opposed to them."

To illustrate this point of the controversy he quotes: "Some years ago Dr. Atlee stated that he had had no experience in the introduction of pessaries, but a large experience in their withdrawal; and that he could treat his patients satisfactorily without the use of pessaries."

Dr. Henry Bennett declares that his whole experience is antagonistic to the doctrines of those who employ mechanical means in the treatment of uterine flexions and other deviations.

Dr. Matthews Duncan believes there is "a fashion in these matters." In speaking of a dislocated uterus he uses this strong language: "I defy all the doctors in Christendom to put it right."

On the other hand, Barnes, Hewitt, Simpson, Atthill, and the majority of European gynæcologists of eminence, commend mechanical support; so do Thomas, Emmet, Sims, Lusk, Skene, Munde, and the leading gynæcologists of America.

Bantock quotes Goodell as saying that he was originally opposed to the use of pessaries, but that later and riper experiences had made a convert of him,—he was now in favor of properly adjusted mechanical appliances

Marion Sims regarded pessaries with suspicion, and was inclined to call them "trumpery," but subsequent experiences moulded his opinions into those of a strong advocate of mechanical uterine supports.

The best of gynæcological opinion to-day is that pessaries have been abused, and are not employed on the trivial occasions they once were, but they were no less advocates of the mechanical scheme for correcting uterine deviations, and no less able champions of the method. In fact such improvements have been made in the construction of pessaries that objections once pressed against their use are no longer valid or tenable. I entertain no prejudice in the matter, simply avowing that I am in favor of the use of properly constructed and skilfully applied *pessaries* in the treatment of uterine flexions and disquieting versions. My opinions are based upon experiences, and are subject to change as demonstrations may exert their influence.



I entertain profound respect for the opinions of others when grounded upon rational experience, but decline to respect a senseless and baseless prejudice. It is not in accord with the avowed principles of eclecticism to entertain a groundless bias;—we should prove all things, and hold fast to that which is good. Too often we refuse to investigate, finding it easier to condemn without a thorough trial.

## UTERINE RETROVERSION AND RETROFLEXION.

While a slight degree of anteversion may be natural, a considerable degree of anteflexion is not as common as a pronounced backward tilt or bending of the womb. In other words, a troublesome state of retroflexion or retroversion is commoner than a morbidly anteverted condition.

Retroversion is a canting backward of the uterus, the fundus of the organ resting against the rectum, and the cervix pressing the bladder and pubic bone. In retroflexion the womb is bent across itself at an acute angle, the fundus resting in the Douglas *cul-de-sac*, and the cervix in nearly a normal attitude.



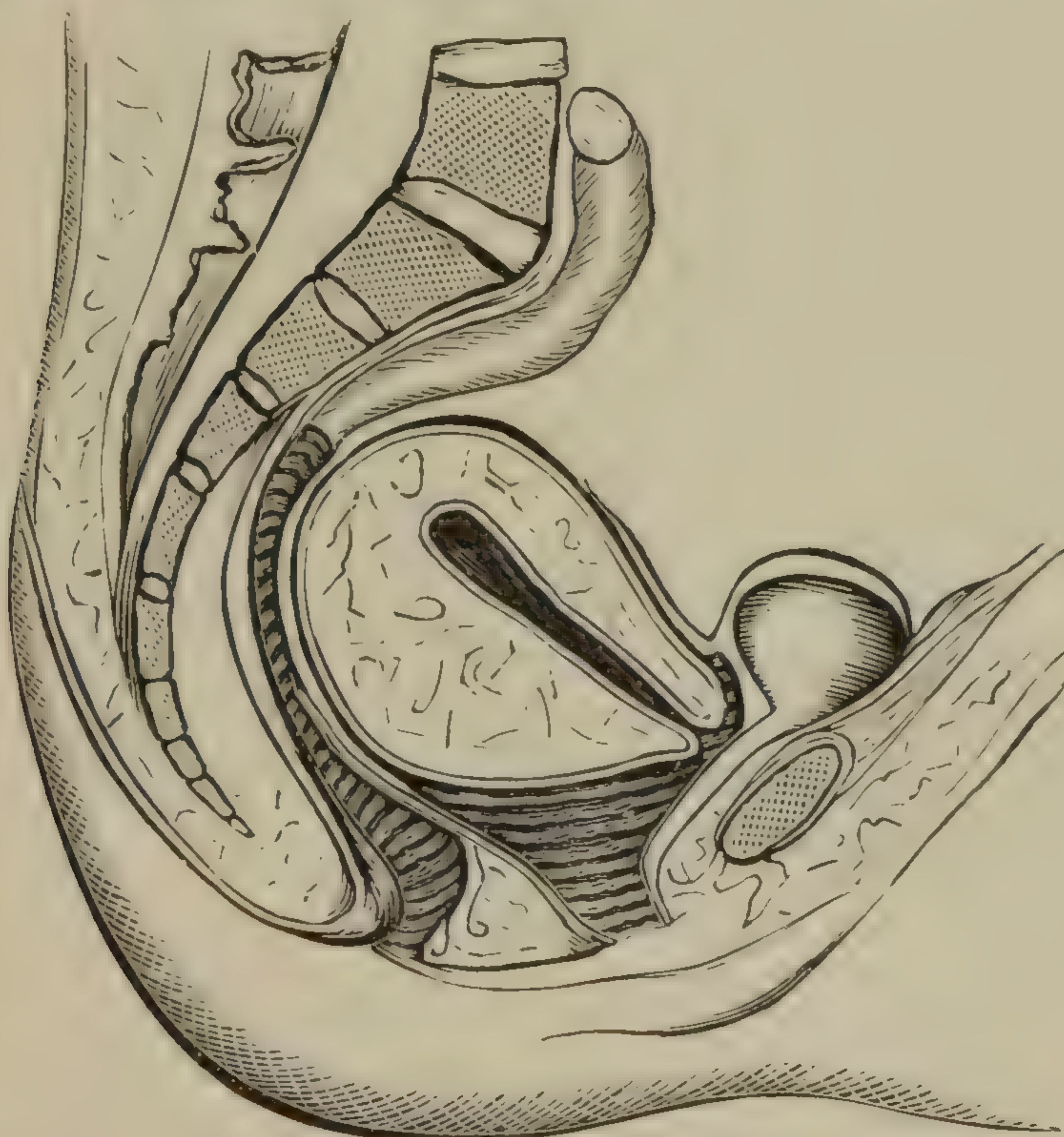
Medium degrees of deviation, and not representatively retroflexion nor retroversion.

Between true retroversion and retroflexion there is a medium degree of deviation, neither variety being representative of the two backward displacements. Besides, there are all degrees of deviation in uterine displacements. In a study of abnormalities we rarely find two variations which exactly correspond. However, there are many kinds which so closely resemble each other that a difference may not be recognized at once. In fact the womb is never still, as I have before remarked; but is subject to constant changes in poise. Suspended loosely in the pelvis, the



womb must be subjected to tilting influences. An engorged rectum sways the fundus of the uterus forward; and a distended bladder pushes the uterus backward. When the body is languid the womb hangs low in the pelvis; and in a tonic state of the viscera it ascends an inch, more or less. To fix the organ in one place is impossible.

An impulse is imparted to the abdominal organs by a sneeze or a cough; and all exertions push the uterus downward. However, the robust women of the rural districts do heavy work, both out of doors and within, yet they rarely suffer with uterine displacements. Occasionally I have encountered retroflexion in a stalwart laborer. I have known a woman on a farm who could toss a bushel of vegetables into a market wagon, to wear a glass pessary three inches in diameter to prevent the womb from escaping from the vulvar aperture. But robust women may not seriously mind considerable uterine prolapsion or retroversion—they endure without suffering.



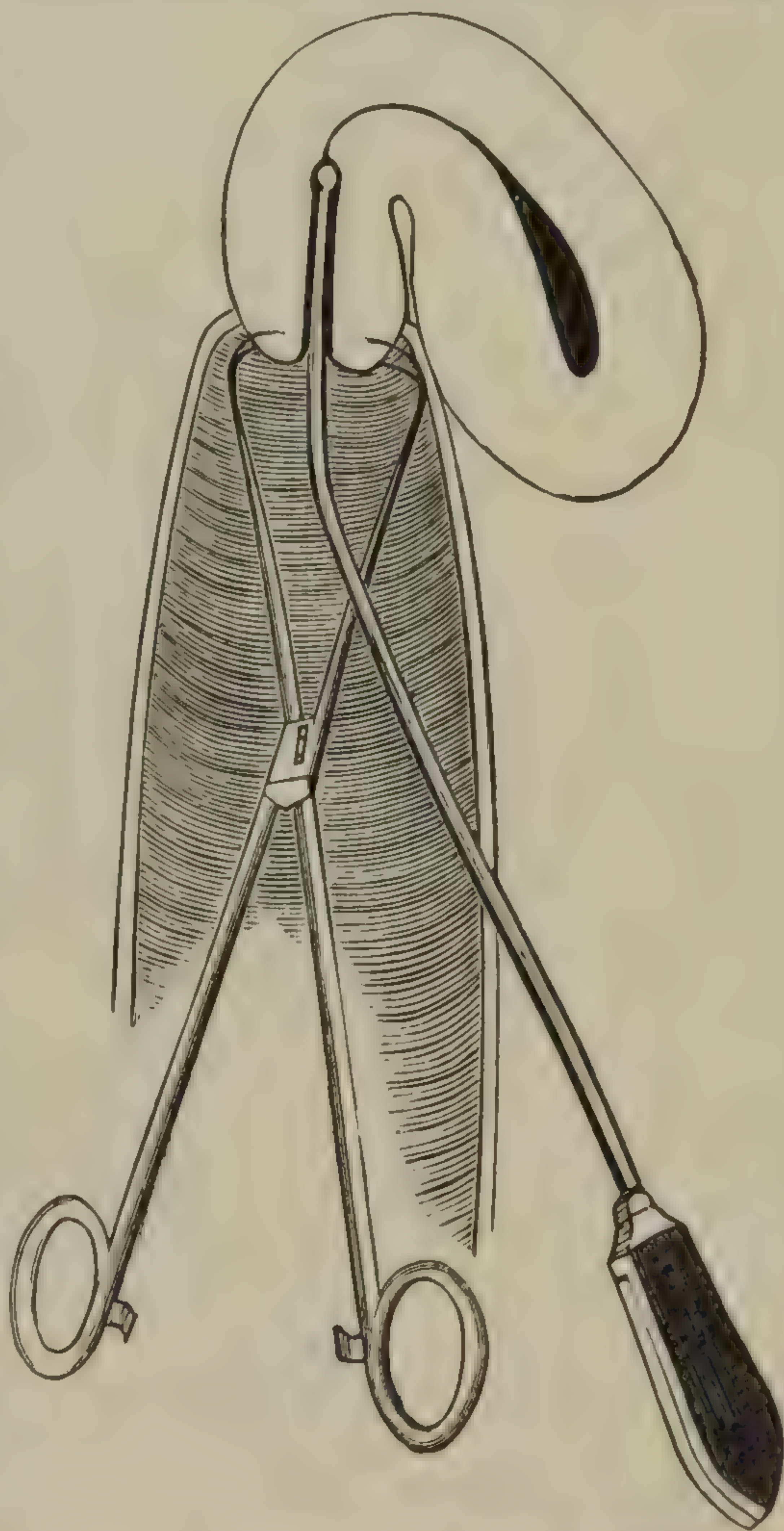
Established retroversion with a tendency to prolapsion of the overthrown womb.

During pregnancy the womb passes through daily changes, which are disturbing even if they be physiological; yet the pregnant state favors the cure of versions, flexions, and prolapsions. But, as soon as pregnancy is over, and involution has terminated, there is no assurance that the old displacement will not return.



A retroversion which has become established by long displacement, is only temporarily cured when the womb rises into the abdominal cavity during pregnancy. As soon as physiological atrophy takes place after parturition, the womb topples over backward, and lies almost crosswise in the pelvis. A pessary may hold the retroverted organ upward, yet will not keep it upright. I have been bothered over such persistent displacements, and too often have been obliged to let them go as they were.

A case of retroflexion pestered me beyond measure. I found the organ so much bent on itself that I could not get a sound past the angle till I had seized the neck with vulsellum forceps and straightened the canal of the uterine cavity. This is easily done, as represented in the accompanying diagram. The forceps are to be pulled upon while the sound or "repositor" enters. The entering implement lifts the uterine fundus out of the *cul-de-sac* of Douglas, and, for the time, restores the organ to its upright and natural position. In no other way can the uterine sound be made to penetrate to the bottom of the retroflexed fundus. The sound enters while traction is made on the forceps. The force lifts the fundus from the Douglas *cul-de-sac*, and as the sound enters the cavity of the fundus the body of the organ rises. A leverage is brought to bear over the sacro- and vesico-uterine ligaments, and the fundus is pried into place. The manoeuvre is so easily performed that it seems like a trick. It is quickly executed when once understood, but I had to stumble upon the art—had to reach it tentatively or experimentally.

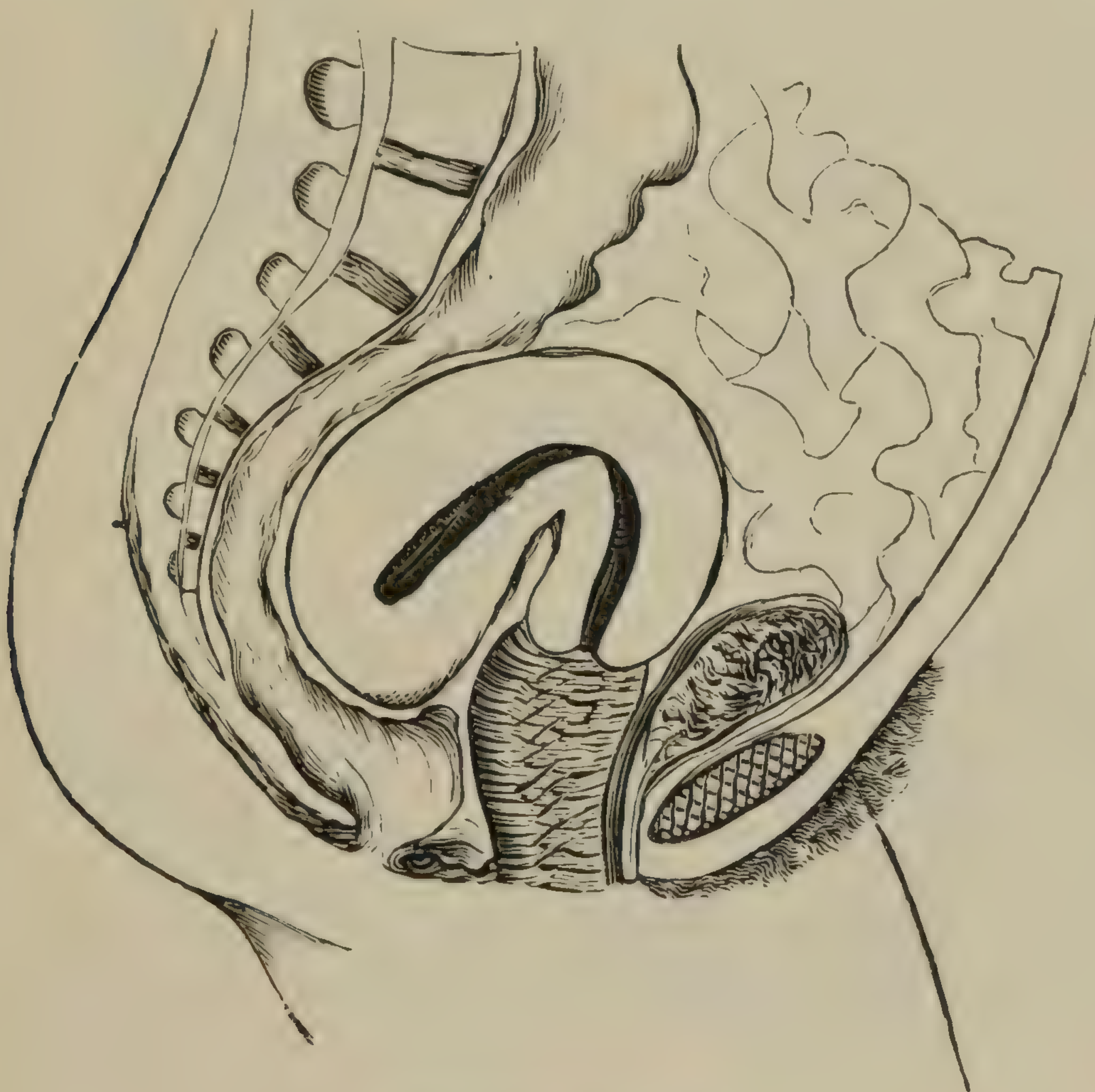


Vulsellum forceps ready to pull downward upon neck of retroflexed womb, while the sound enters the cavity of the organ.

Retroversion may be the primary displacement which ends in complete retroflexion, the fundus and cervix resting close



together when the flexion is complete. Dr. Vedder, of Christiana, in describing flexions, divides them into three classes: flexion of the first degree, in which there is mere curvature, or an angle greater than a right angle; of the second degree, meaning flexion at about a right angle; and of the third degree, in which cervix and body are nearly parallel. The accompanying illustration represents the third or extreme degree of retroflexion. The fundus is to be found in the *cul-de-sac* of Douglas, impinging upon the rectum. By a digital examination the bulging fundus can be felt behind the cervix, and in contact with the bowel; and an ano-rectal manipulation reveals the nature of the "tumor" in the recto-vaginal fossa.



Retroflexion of the Uterus.

A woman having complete retroflexion is apt to be sterile unless the womb be straightened occasionally; and she suffers from several ailments of the pelvic viscera. The fundus, pressing against the rectum, may hinder easy defecations; and the angle obviates emptying the uterine veins, hence a chronic state of uterine congestion exists. The bight at the angle of flexion



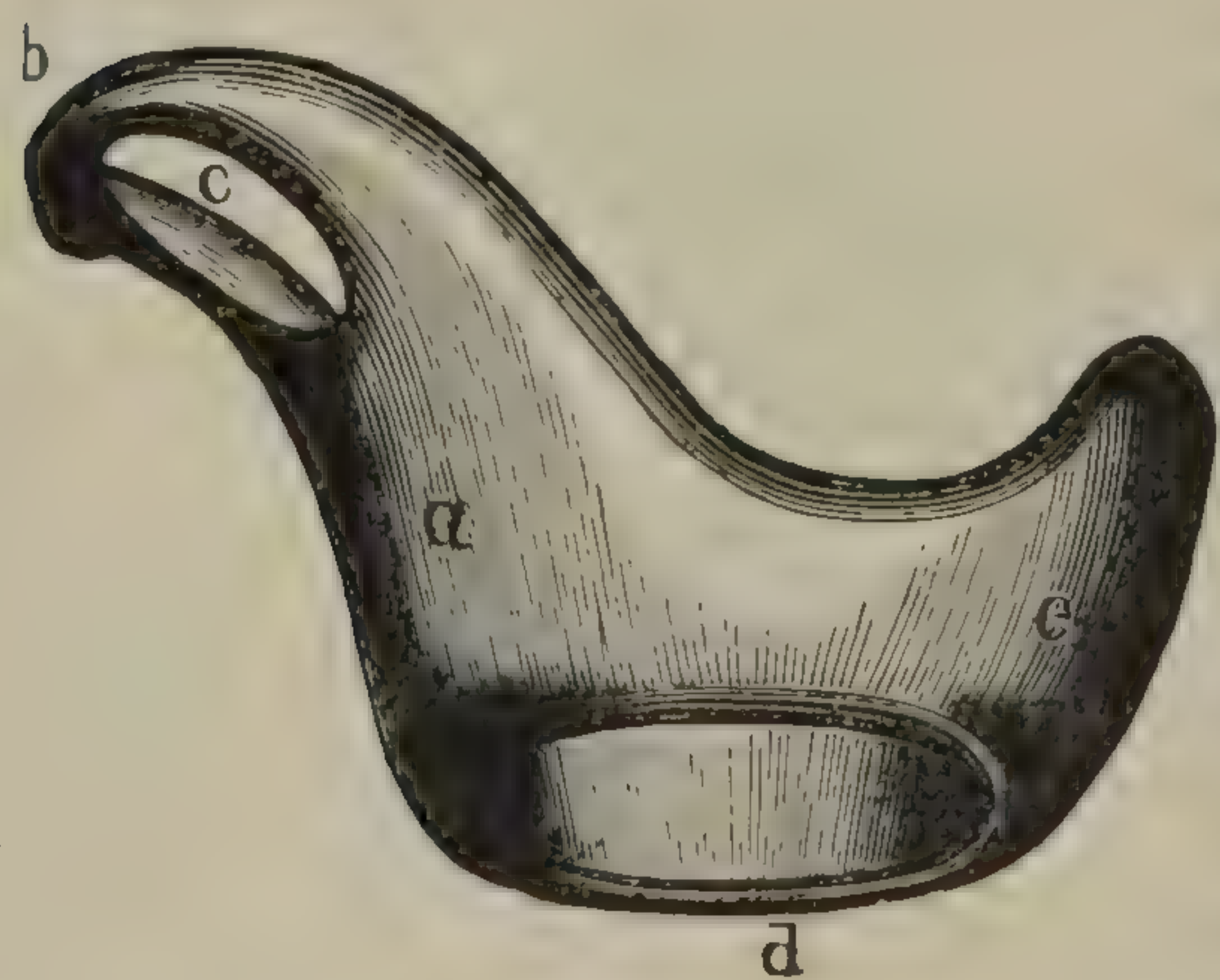
prevents seminal fluid from passing, hence the stenosis which contributes to sterility. Besides, a retroflexed uterus opposes catamenial discharges, thus becoming a cause of dysmenorrhœa. The attending irritation is made manifest in many ways:—in dragging pains, in worry of the rectum and bladder, and in leucorrhœal discharges. The ovaries partake of the uterine congestion, pelvic irritability, and general uneasiness.

The treatment for uterine retroflexion is not so curative as the zealous could wish. A stem-pessary, after straightening the uterus with a sound, suggests itself to the ingenious novice, yet later experiences do not warrant a continuance of the practice. In the first place a stem-pessary is difficult to introduce, and hard to keep in place; and the pa-



Stem-Pessary.

tient herself is rarely competent to re-introduce the implement if it become displaced. Then, again, the wearing of any implement in the uterine cavity provokes irritation, which is apt to be followed by endo-metritis. The first stem-pessary I ever employed was of my own invention. I covered a stem of steel wire with a leaden cap or cover. A shoulder projected at a distance of two inches and half from the point. A curve in the wire



Fowler's Pessary.

took it out of the vulvar aperture, and to a pubic pad, which was joined by a spring and belt encircling the hips. This was worn with comparative ease, though apt to excoriate the vulva. The leaden cap or cover to the two and a half inches of point did not irritate the endometrium. After a patient has worn a stem-pessary for a week

or two, she may have a rest for the same amount of time. If the womb has dropped into its accustomed state of retroflexion the stem-pessary may again be introduced after the organ has been straightened with a repositor of some kind.

The pessary of Fowler has given greater satisfaction in the treatment of retroflexion than any other. Its projecting lip empties the Douglas *cul-de-sac*, and gives the fundus an oppor-



tunity to escape from that pocket. The cervix uteri falls into the greater aperture;—the small hole is to enable the finger to exert force upon the implement while inserted, adjusted, or removed. The proper size is to be utilized or the pessary will do more harm than good. If too small, it will come away; if too large, it will inflict pain.

What Tait calls the “wedge pessary” is a Smith-Hodge with a thick cross-bar at its large end. The “wedge” is to indent the Douglas *cul-de-sac* and pry the fundus upward. The thickened end of the Thomas pessary is for the same purpose.

In elderly subjects the “cradle” pessary, so called, has been utilized to advantage to correct retroversion. It is made of hard rubber, and quite light. The implement proves a support to a falling womb, as well as to relieve “pelvic pressure” of a retroflexed uterus.



Cradle Pessary.

A woman annoyed with a retroverted or retroflexed womb is not to be put off with a mess of medicine, and the assurance that a pessary is worse than nothing, especially if the practitioner have had few opportunities to manage female difficulties. She hears that other women have been successfully treated with pessaries, and will seek relief where others have found it. She will wear one pattern, and then another, until relieved, or practically convinced that a pessary does as much harm as good.

A pregnant womb is not to be treated with mechanical props, but a deviation of the organ is to be left to itself. The physiological evolution it is undergoing will correct all displacements,—all versions and flexions.

The operative plan of Wood, to open the inguinal canals, and shorten the round ligaments, might benefit a retroversion, but will not impress a retroflexion—the pull is not in the right direction. I have executed the operation in several instances, and always with the feeling that the procedure was not adequate to the ends in view. I never did think that the round ligaments



were competent to hold the womb upright. The slender bands are little more than feeble representatives of the spermatic cords in the male. Their expansion in the pubic region, and their loose attachments, show their insufficiency as ligaments. Pulling upon the round ligaments in the cadaver will not move the uterus, even when the inguinal canals are opened.

In a case of ovariectomy, in which I found the womb retroflexed, I lifted the fundus from the Douglas *cul-de-sac*, and with an animal suture fastened it to the pedicle clamped in the abdominal incision. The treatment proved a cure. As I lifted the fundus from the recto-vaginal fossa I noticed that the round ligaments exerted no control over the retroflexed organ.

In a comprehensive consideration of uterine retroflexion it must be contemplated that *sub-involution* is a prime factor in the mechanics and dynamics of distortion. After parturition the womb fails, for some reason, to return to its normal size—it is left top-heavy, and tumbles backward through gravity, or a lack of ligamental support. At first there is slight retroversion, then progressively more and more tilting of the organ till retroflexion occurs. The engorged and congested fundus gets incarcerated below the promontory of the sacrum,—in the Douglas *cul-de-sac*. The acute angle at the line of flexion establishes venous engorgement and invites infiltration, so that the enlarged end of the uterus becomes imprisoned in the recto-vaginal pocket. In not a few cases the adhesions or fortuitous bands hold the womb in a permanent state of retroflexion. If the fundus continue mobile it is possible to push the retroflexed mass out of the pocket, the finger being used as a plunger while the patient rests on her knees. The impulse imparted may carry the fundus out of the prison,—may set it free. Then, while the womb is elevated, a cotton flannel pessary (such as has been described) may be inserted through a duck-billed speculum, so as to hold the fundus of the womb upward. In a day or two this fabric should be removed and another replaced. This gives the womb an opportunity to regain the upright pose. However, if a state of sub-involution exist a cure is not easy. Hot injections or vaginal douches are to be employed, and large doses of ergot should be swallowed. Chlorate of potash may be dissolved in the douches. The bowels are to be kept in a pasty state with sulphur, and the stomach braced with “Viburnum elixir.” The Lloyd Brothers manufacture such a tonic after a prescription of mine. The medicine can be ordered of the manufacturers. The ergot, Squibb’s extract, is prescribed in fifteen to twenty-drop doses,



and taken at night. The Virburnum compound is given in half teaspoonful doses every three hours during the day. An hour should be consumed in taking the hot water douche, a fountain syringe being employed. During the treatment the retroflexed womb is to be replaced with a sound every two or three days. The reposition relieves the organ of congestion. If the woman has been sterile the treatment will overcome the angular stenosis, so that in time pregnancy may take place. However, the continued use of the sound would be fatal to conception.

I have encountered a few cases of retroversion and retroflexion which gave the patient no discomfort. I stumbled upon the state while exploring the pelvic viscera for tumors and suspected diseases. Having discovered the displacements and found them to be giving no trouble, I was glad to let them alone. If I had inaugurated treatment I might have provoked discomfort. In the management of female diseases it is commonly wise to let well enough continue.

If a woman have some annoyance from a moderate degree of retroversion or retroflexion, she may obtain considerable relief by accustoming herself to lie on the front aspect of her body. If she rest and sleep upon her abdomen the pitch of the pelvis is such that the fundus of the womb falls forward.

In diagnosing a suspected retroflexion it is to be borne in mind that an ovarian or uterine tumor may get into the Douglas *cul-de-sac*, and present the physical features of a retroflexed fundus. Without such consideration a somewhat expert gynæcologist might commit a mistake, or fail to comprehend the true state of things. A fibroid in the posterior wall of the womb, or a salpingian infarction, might wonderfully mislead.

Manipulations conducted to ascertain the contents of the recto-uterine fossa require the patient to rest upon her left side with the thighs flexed on the abdomen, or she should rest on her knees. Then, with a sound in the uterus and a finger in the rectum, the contents of the Douglas *cul-de-sac* may be felt and passed upon. Afterwards a bimanual handling, with the patient on her back, may contribute something to the diagnosis of pelvic derangements of an obscure character.

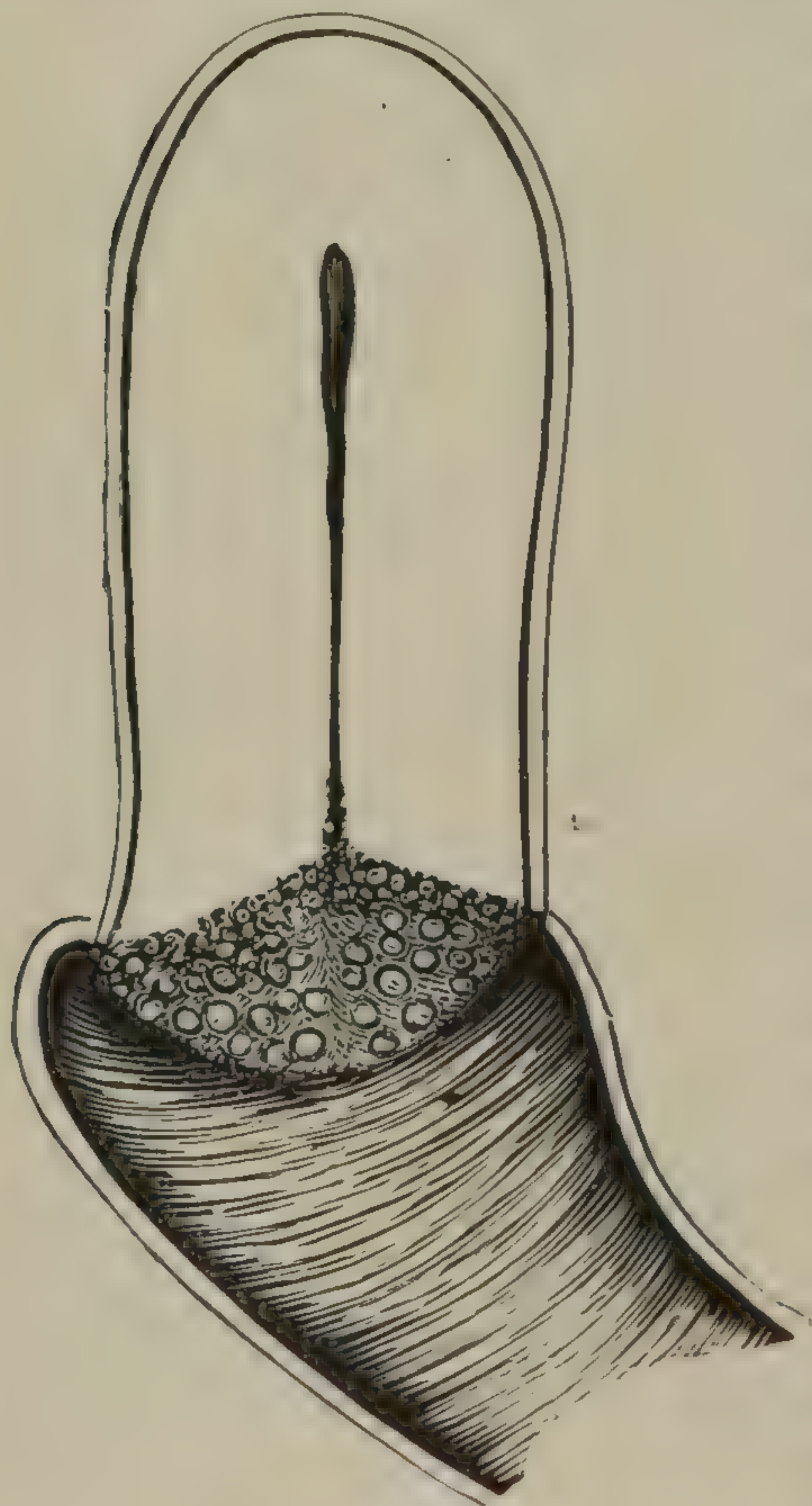


## SECTION IX.

## TUMORS OF THE UTERUS.

## HYPERTROPHY OF THE UTERINE CERVIX.

In another place, under the head of *endo-cervicitis*, I have referred to an inflammatory bulging of the uterine neck with enlargement and induration of the cervix uteri; but did not cover quite all the ground. Now and then we find a pouting of the lips of the womb, as if they were swelled. The os tinæ has a jelly-like fillet hanging from the aperture, showing that more or less endo-cervicitis exists, yet the surrounding hypertrophy



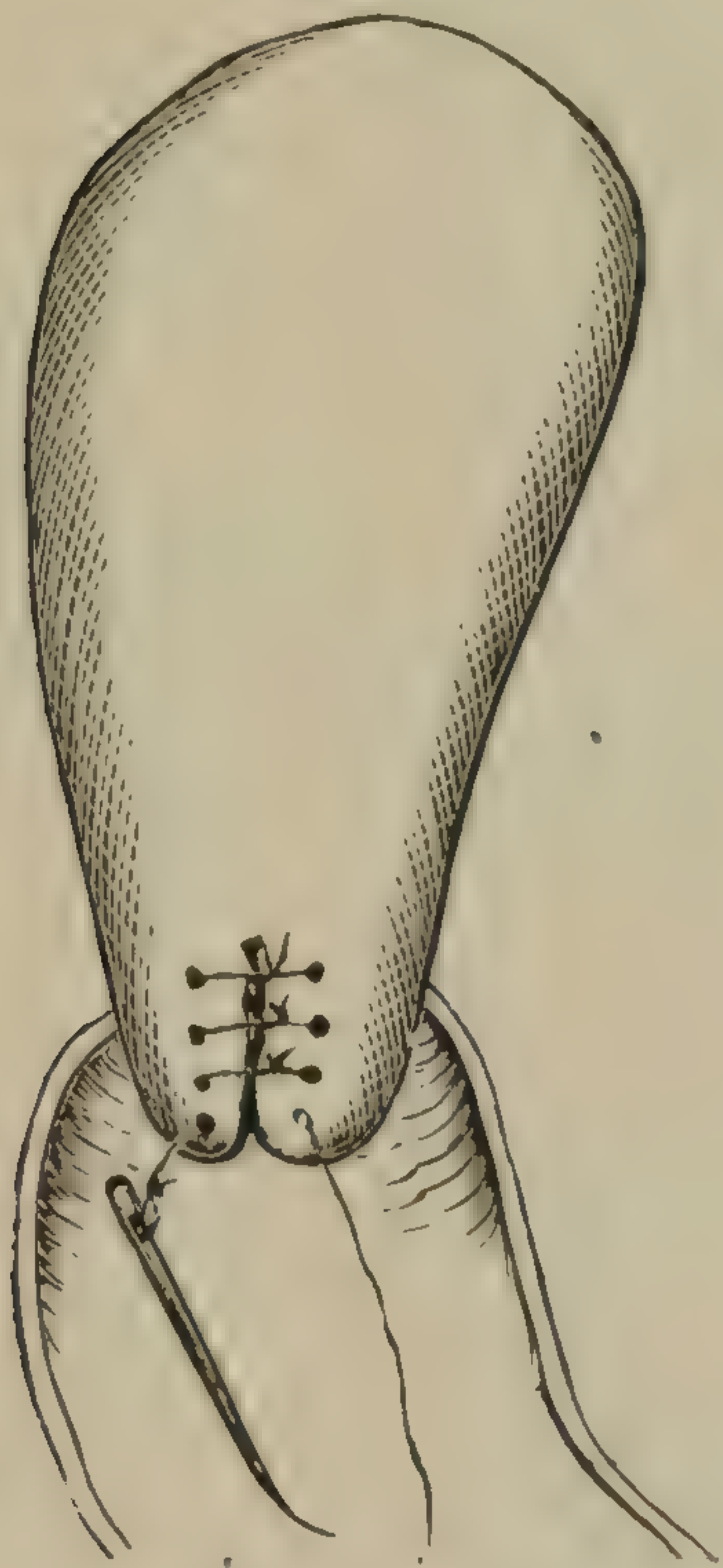
Tumefied Cervix.

and induration mean something more than inflammation of the lining of the cervix uteri—there is disease of the outer tissue of the cervix. It is to this folliculitis that I now call attention. There is morbid hypertrophy of the cervical body. It is known to all practitioners of medicine that the neck of a womb that has undergone parturition, presents a transverse fissure in its lower extremity which divides the face of the cervix into antero-posterior halves; and that the upper and lower lips bulge and appear swollen. The theory of gynæcologists is that the laceration of the os at parturition allows the inner parts to protrude; and Dr. Emmet instituted as a plan of cure, that the antero-posterior lips be incised—freshened—and the flaps

be then stitched together. This operation he called trachelorrhaphy,—the meaning of which is to sew the neck of the uterus, or stitching the uterine cervix. The operation became very fashionable(?) among gynæcologists, for it was not dangerous;



and subjects were plentiful. And I confessedly state that relief from pelvic distress followed in a large *per cent.* of cases operated upon. The operation of Emmet consisted in a removal of the bulging lips, and stitching together the traumatic surfaces, leaving an unclosed space in the middle or centre for menstrual discharges. I performed the operation several times before I understood how the benefit arose. At length cases that had been operated upon by other surgeons came into my hands for additional relief, the complaint being that they had not been substantially benefited, or were still suffering. In a large proportion of cases of those coming to me there had been too small amounts of the tumefied cervix excised. The uterine neck remained too large. Those cervixes which had been freely slashed were in the best condition.



Sutured Cervix.

The operative procedure in trachelorrhaphy consists in freshening the indurated and cicatricial lips with sharp and flesh-cutting scissors, the patient resting upon her left side upon a table; and the depths of the vagina are exposed to view by the use of a duck-billed speculum. The patient may be put under the influence of an anodyne, though the operative procedure is not very painful. If the womb hang high and out of vision, the cervix on one side may be seized and dragged into view or within easy reach; then scissors are made to incise one lip, and to keep cutting till a thick flap is removed to the median line. Then the oppo-

site flap is started and continued with snips of the scissors till the edge of the traumatic surface on the other side is reached—till the freshening process is complete. The bleeding may be considerable, yet I have not found more hemorrhage than I could control with the pressure of the finger for a minute or two. After the freshening process is ended, closure of the chasm is to be commenced. Short curved needles are armed with silver wire or silk threads, and placed within reach. The needle holder is made to hold a needle near its eye while the point is forced through the edges of both flaps, closing each lateral incision from



top to bottom before the other side is attacked with needles. As soon as a quarter inch or so of a needle point is forced through the flesh and into view, the needle holder lets go of the eye-end of the implement, and, seizing the point, drags it through, drawing the wire or thread into its middle. Then fingers knot the two ends if they be thread, and twist them if they be wire, each fastening being made snug and secure. Three or four sutures on each side will hold the flaps in apposition, and insure union. In eight or ten days the sutures may be snipped and removed, but the tender seam is not to be meddled with for a week or so. It is best to operate a few days after a catamenial *nisus*.

During the freshening part of the operation, swabs—bits of sponges tied on the ends of sticks—are to be employed to free the wound of blood. A half dozen swabs in a pan of water within reach of the operator are quite useful. The canal of the uterine cervix cicatrizes into an indurated, inelastic, and puckered conduit, which does not serve a good purpose afterward. At the next parturition the scarred structure readily tears, and a renewed operation is in demand.

As before stated, I do not like the operation of Emmet, and have cast about for some improvement upon it. Of late I have abandoned trachelorrhaphy and instituted amputation or excision of the cervix, yet employing no sutures to close the wound. I cut away the enlarged and indurated cervix, and permit the wound to close by granulation. And I have been astonished to find almost a virgin cervix to follow the cicatrization. There is no more bleeding than in Emmet's operation; and if there were, a tampon would arrest the hemorrhage. The wound is to be daily washed with a syringe, and drainage is unsurpassed. I make the amputation by seizing the cervix with vulsellum forceps, and dragging the womb to the vulvar aperture, into sight. Then with a knife or strong scissors I excise the lower end of the uterine neck, leaving the wound a little cup-shaped. As the last clip is made, the amputated mass becomes disengaged, and the liberated womb bounds upward into place. If the hemorrhage be brisk, a tampon may be employed for the time, or even re-applied the next day if needed. In ten or twelve days the wound will entirely heal, leaving a small stump with a puckered center where the cicatrized os may be felt. The womb no longer feels congested and heavy, but is free from every discomfort. The endo-cervicitis disappears, and all uterine trouble. The cure in most cases is radical and



complete, no after annoyance remaining. No cure succeeding trachelorrhaphy could be more satisfactory.

A novice can perform the amputation, while it requires expert talent to execute trachelorrhaphy. Besides, I have known the latter operation to be followed by occlusion or distortion of the os, and by increased uterine distresses.

A Cincinnati gynæcologist broke a needle while executing trachelorrhaphy, and left a fragment in the cervix. In the course of time the foreign body gave trouble, and the patient fell into other hands for relief. The jagging needle-point was then discovered and removed. But this was not the last of the matter; the long sufferer sued her old gynæcologist for large money damages; and he had to make costly answer in the courts. The doctor is an expert, hence there may have been some malice in the prosecution.



Uterine cervix excised.

## UTERINE POLYPI.

Tumors springing from the inner wall or inside surface of the uterus, whether sessile or pedunculated, are denominated polypoid or polypi. In this classification cancerous fungoids are not included, nor are cauliflower excrescences; neither are solid and cystic tumors confined to the uterine parietes. If tumors of the womb do not reach the mucous lining they can not be called polypi, at least till in their development they approach the endometrium and cause it to bulge. A peduncular tumor may have been sessile in its nascent stages; and then through gravity and surrounding pressure it may descend the uterine canal till a pedicle develops. After an intra-parietal uterine tumor has, in its growth, left its original seat and become elongated, it may be pronounced polypoid.

The anatomical character of a polypus is likely to be similar to the structure from which it springs. If the base of the neo-



plastic growth reach to the fibrous or muscular tissue of the womb, the morbid mass should be fibro-myomatous; but if the foot-stalk rest in mucous or sub-mucous texture the mesh-work of the growth will be almost gelatinous, expanding and contracting like a nasal polypus. The glandular variety of polypoid developments arises usually from the enlargement of an endocervical follicle, and rarely attains a large size. Such a polypus is usually attached to the lower margin of the uterine cervix.

A fibro-cystic polypus may develop from the fundus of the womb or the border of the entrance to a Fallopian tube—in one of the womb's cornua. Through the medium of a slender pedicle such a polypus may extend through the uterine canal and cervix, and appear in the vagina, and even outside the vulva. If it bulge into a pear-shaped mass with its pedicle occupying the canal of the cervix, it may seem like an inverted uterus, especially if the expanding end appear cup-shaped.

A polypus developing from a cervical follicle is the most frequently encountered, and is also the most harmless. It may exist for some time without the patient being aware of its presence; an obstetrical touch may be the first to discover the growth; or the vaginal speculum employed to learn some vesical or uterine defect, may disclose the morbid mass. I have stumbled upon small polypi attached to the neck of the womb while making explorations to ascertain the existence of various abnormalities. In mentioning the discovery to the patient it is well to declare that a polypus is one of the most unimportant of morbid growths. The statement of Barnes that a uterine polypus is "a parasitic body" fails to be true in any respect. If we are to be forever misled by the etymology of the term, it is a pity that *polypus*—many-footed—ever became a pathological expression. A polypus has not the nature of hydatids which have a nidus and habitat in the abdominal cavity. All the open cavities of the body are liable to polypi,—the nose, the maxillary sinuses, the ethmoid and sphenoid cells, the pharynx, and larynx; the rectum, the bladder, and the vagina, as well as the urethra. They are apt to be multiple in nasal attachments, yet single stalked when of uterine development. Sometimes a polypus is pale and almost bloodless, while at others the growth is fiery red and vascular. A woman thirty-five years of age, who was the mother of two children, asked me to treat her for profuse catamenial hemorrhages. To make sure that I did not chase a phantom I asked for a vaginal examination. The finger found the os uteri



quite large, with a fungous display of the cervix. A vaginal speculum revealed an expanded *os tinæ* with a bright red mass occupying the centre. This I poked with the end of a sound till I discovered its size, length, surroundings, and attachment. Then I seized it with long-handled and rough-bladed forceps, and with a twist or two and a gentle pull I easily wrenched the mass from its matrix. Nothing could be plainer or easier. Little hemorrhage attended the operation, and no pain. I had the patient to rest in bed for a few days, and to take a tincture of *Mangifera Indica* in fifteen-drop doses every three hours to cure the menorrhagia she suffered for months and months. The cure was most satisfactory to the patient, especially as she had been treated a long time by a physician who places undue importance upon subjective symptoms. If he had ascertained that the hemorrhages depended upon a uterine polypus he would have treated his patient rationally.

A lady once came to me from a neighboring town who said she had something growing from the mouth of her womb. Placing her upon my gynæcological chair, on her left side, I ascertained by a digital examination that she had given a correct description of the morbid development. The tumor had a snug base, and was rather dense and firm. In size and shape it is well represented in the accompanying diagram, the outline of which was sketched at the time. To make short work of the matter I there and then excised the morbid growth. With long and firm scissors, after the



Polypus of Cervix.

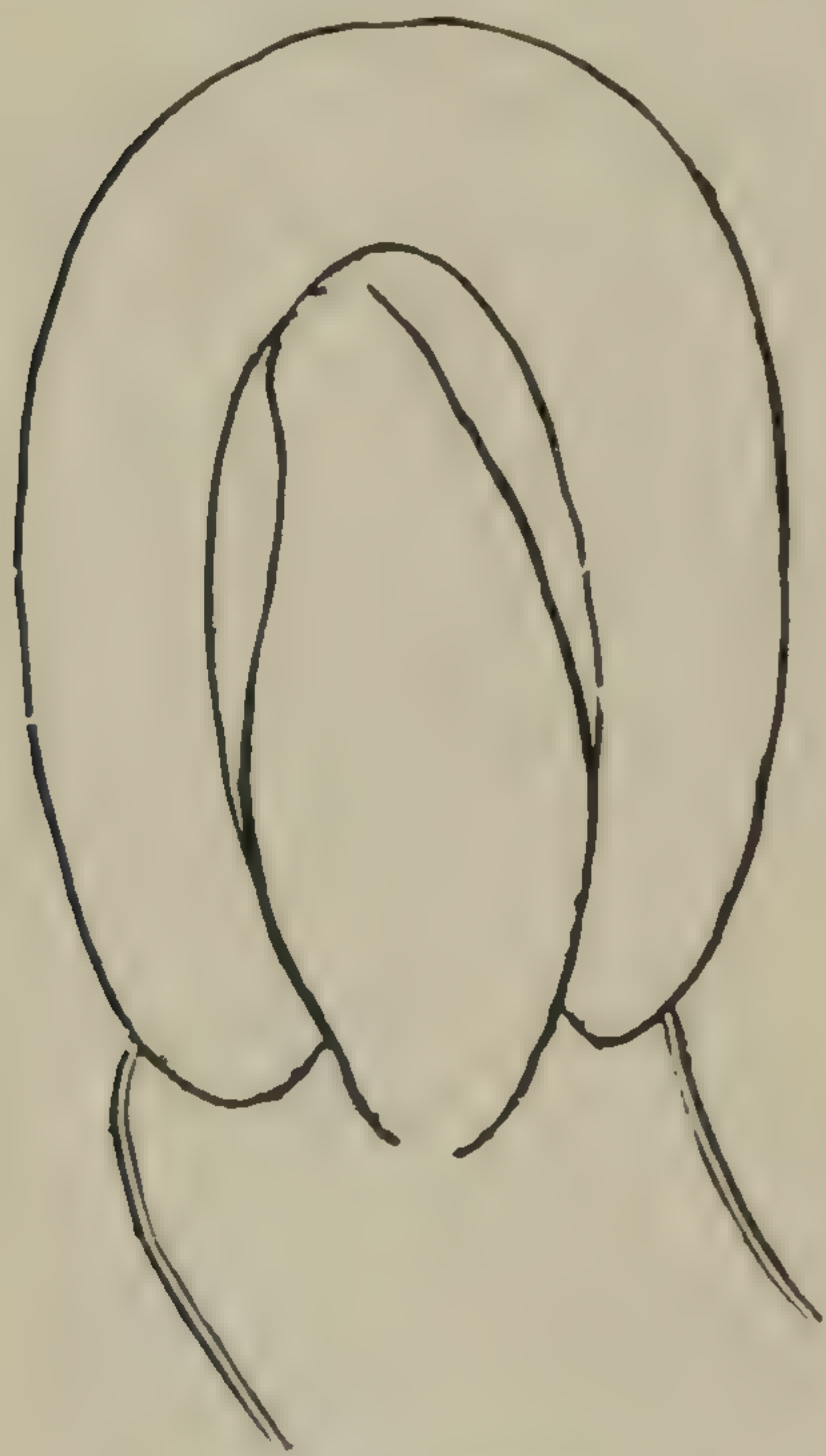
speculum had been removed, I cut a notch in the uterine neck which embraced the pedicle. I employed a strip of canton flannel as a tampon to prevent undue hemorrhage, and let the patient go home in the course of an hour or so.

At the end of two years there had been no return of the polypus; nor will there be a return of that one, for I cut away the matrix or base of the pedicle. No reproducing follicles remained. It is not always so easy to eradicate an evil. When a polypus is not larger than a pea or a grape, and springs from the uterine cervix, I nip it off with my thumb and finger. It



may be well in some cases to apply a salicylic acid unguent to the base of such morbid developments.

A polypus which extends from the inside of the womb—perhaps the fundus—through the os uteri and into the vagina, is to be seen and felt, but its basal attachments not clearly made out. However, if the polypus be seized with forceps, and a sound be sent along its course to the depths of the womb, the inserted implement may be made to touch the basal attachment and to measure the size of the pedicle. Now the spoon-saw of Thomas may be made to lacerate the tumor at its attachment, and otherwise weaken its hold, so that the mass may be pulled away, the separation occurring where the serrated spoon has sawed through the outer warp or envelope, and rendered the pedicle friable. The official polyprome is not a favorite instrument with me; I prefer forceps, scissors, and the spoon-saw. It is easy to send long scissors, which have blunt points, along the side of a slender polypus, and to cut the base of the pedicle when it is reached.



Uterine Polypus.

A polypus developing in the uterine cavity enlarges the substance of the womb, and gives expanse to the internal parts. It is not uncommon to find a depth to the uterine cavity of three or four inches, and considerable internal space. The hypertrophied organ is hemorrhagic, especially at the catamenial *nisus*. If the polypus keep inside the womb it may remain undiscovered, yet as soon as it protrudes through the os, it may be both seen and manipulated. But, before it makes its way through the uterine cervix, the polypus provokes hemorrhages. The patient will experience pains in the back and

loins, and a heaviness which is unbearable. In fact, the signs of uterine polypus are so pronounced that explorations will be suggested for the purpose of ascertaining whether a tumor of any kind exist or not.

If pregnancy be out of the question, the cervix uteri may be dilated till forceps or a finger can be used in the uterine cavity. After Ellinger dilators have been employed, a pair of glove-fin-



ger stretchers may be substituted, and the canal made as large as desired. If a polypus be present, the opportunity to remove it can never be better. It may be seized with forceps and excised with scissors. No danger from hemorrhage.

Although a uterine polypus is not malignant, it is observable that the presence of a polypoid growth enforces devitalization. The patient becomes worried, anæmic, sallow, dyspeptic, and spiritless, as if phthisis or other devitalizing agency were having its sway. It is prudent, then, to remove a polypus as soon as practicable; and to pursue such a course of dietetics and therapeutics as tend to recuperate the debilitated organism. An oozing of blood, through the presence of a polypus, is exceedingly debilitating, and should be checked if possible. The use of a tampon is only requisite when the hemorrhage is brisk. In a drizzling loss there is danger of blood-poisoning, especially if the os be plugged with fabrics.

It is to be remembered that a womb containing a uterine polypus is liable to other morbid complications. There are likely to be knobby outgrowths from the outer walls of the organ, together with ovaritis and salpingian infarction. A gynæcologist can not be too discriminating while scrutinizing a womb inclined to develop polypi. *Sub-peritoneal* tumors of the uterus are more common than is generally supposed. The abdominotomist has an opportunity to encounter more than he has courage to assault or excise. Then, again, the user of the curette runs against more *sub-mucous* tumors than he cares to assail.

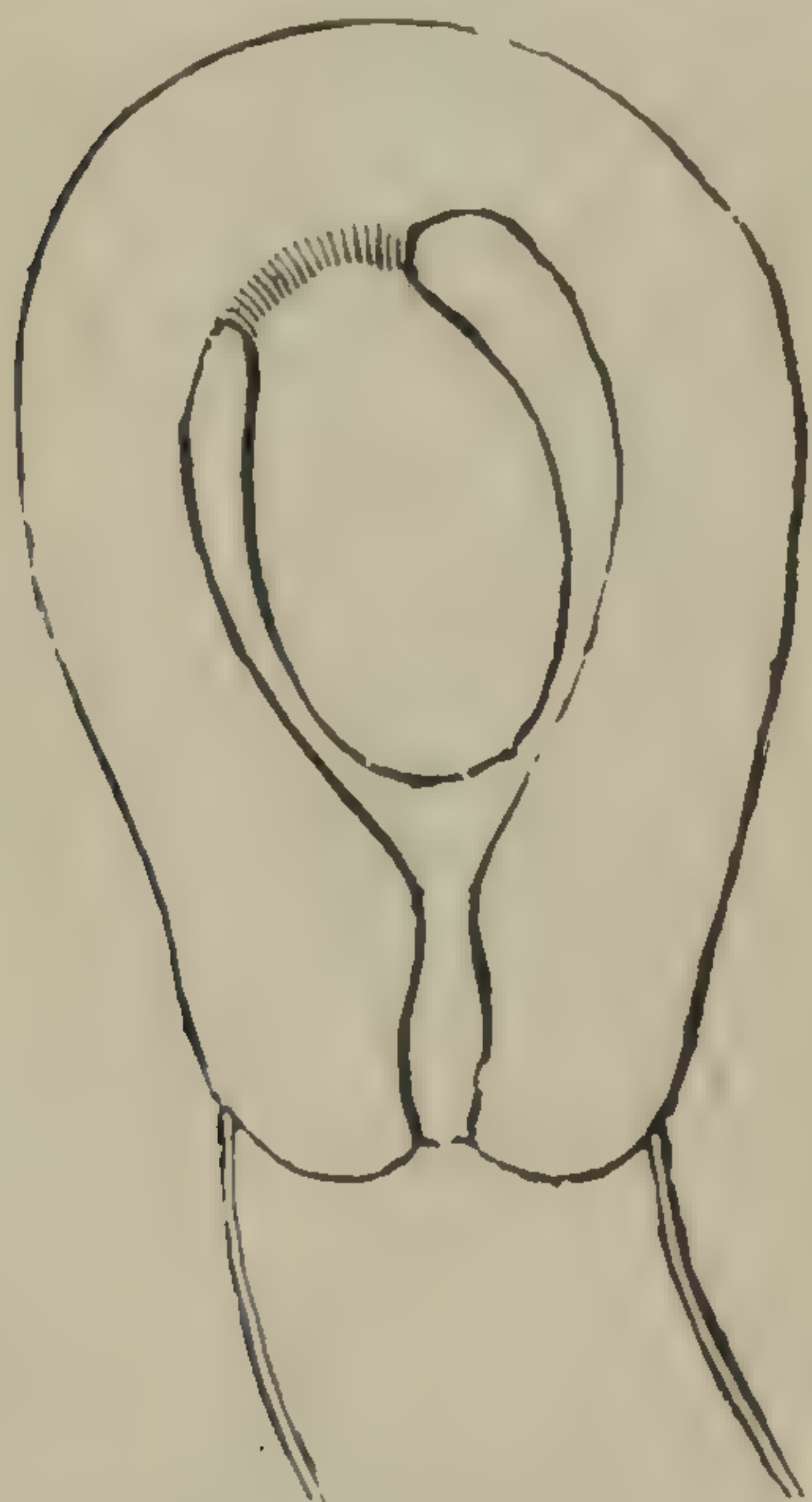


Uterine Polypus.

A polypus which extends into the vagina, and is so bulbous at its lower end that implements can not be carried alongside it, is not easily managed, unless the bulging mass be excised to free a way to the uterine cavity. However, the surgeon of expedients rarely is baffled in a case of the kind. He cuts away what blocks his course, and meets contingencies as they arise. An operative procedure once entered upon should be conducted to a finish there and then. Retreat



is an indication of cowardice or incompetency—both generally go together. A compact fibroid in the cavity of the womb, with a broad attachment to the fundus of the organ, is not a desirable morbid mass to encounter. Once I was called to the country to operate upon the womb of a half-blood of stalwart proportions. The family physician had been led to explore the cavity of the uterus to ascertain the cause of recurring hemorrhages; and he had worked out a rational diagnosis, so that it was easier for me to come to a conclusion in regard to the pathological character of the polypoid or fibroid growth. During a hemorrhage, and while ergot influenced the organ, the doctor could insert the forefinger into the mouth of the womb, and feel the lower end of a firm tumor. This part of the diagnosis he had repeated several times; but during a non-hemorrhagic state he could feel no tumor extending into the cervix. When I commenced



Uterine Polypus.

manipulation the perinæum was so high and firm that I could hardly palpate the uterine cervix; and the *os tinæ* was so unyielding that I could with difficulty carry a sound into the uterine cavity, and with it make explorations. But, with the patient under chloroform, and the use of much muscular energy, the cervix was dilated, the tumor grasped with vulsellum forceps, the womb dragged downward, and the fibroid excised with scissors. I rarely have encountered greater resistance to the use of intra-uterine instrumentation. The patient was

unmarried and a giantess. Such a stature is only to be met in an admixture of Indian and Negro. Being half white, the patient was fine featured and gentle mannered. I mention the physical proportions to make plain the difficulties I encountered in the successful excision of that firm fibroid mass. There never was a return of the growth, nor did subsequent menstruations reveal a disposition to be too profuse. The tumor was fibrous, but in shape might pass as polypoid.



MYOMA UTERI—UTERINE FIBROMA.

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Once it was customary to speak of morbid uterine hypertrophies as *fibromata*, but the fact that the womb is a decidedly muscular organ has led to a change of nomenclature, tumors of the uterus taking the name of *myomata*.

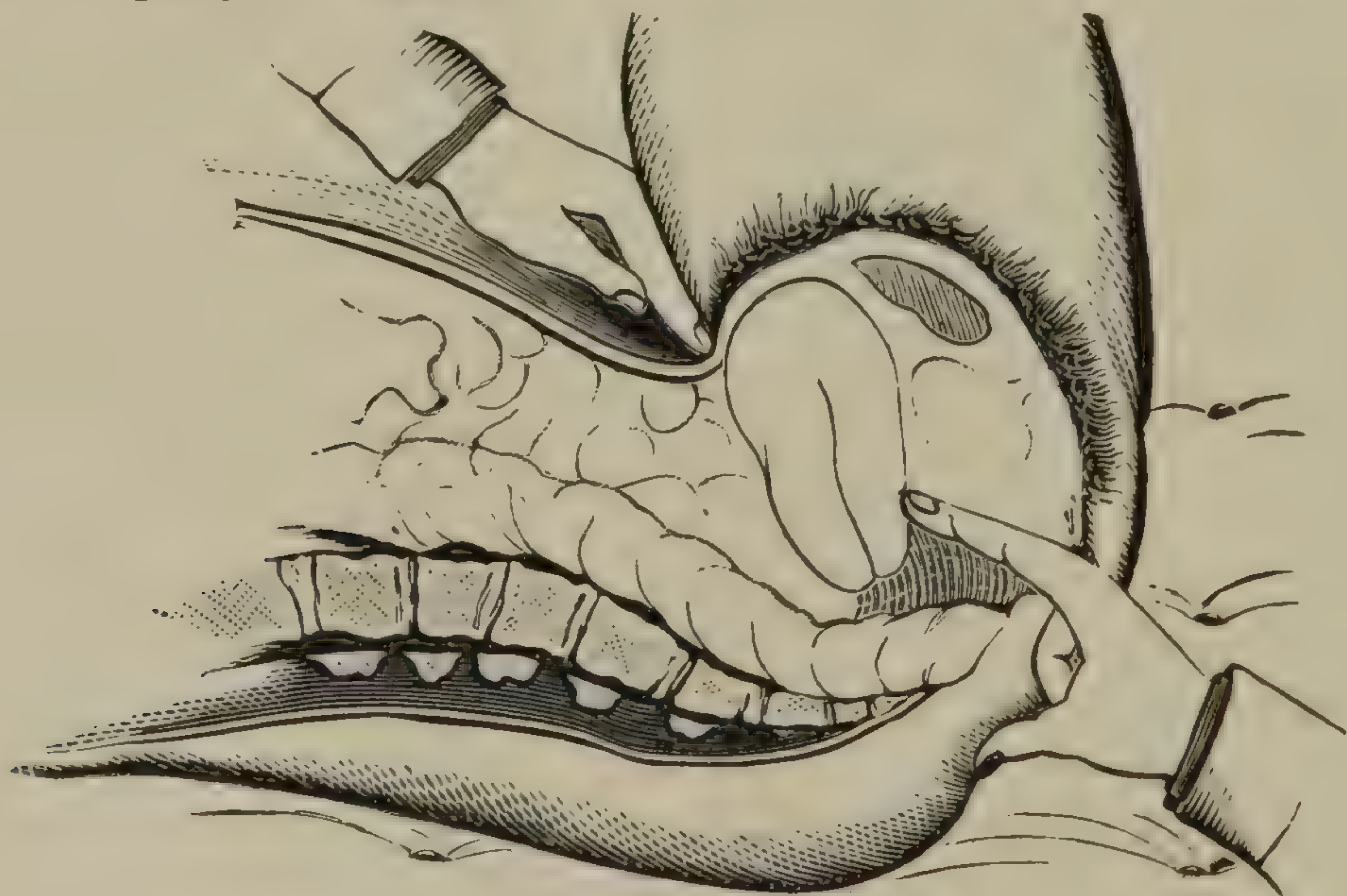
A myomatous uterus in its early stages of morbid development, is so free from pain or inconvenience that the organ attains twice or three times its normal size before the attention of the patient is forced to suspect there may be something wrong with her. If she be married she may think that pregnancy exists, though unusually free menstrual discharges or hemorrhages at catamenial epochs, quite upset ordinary ideas of gestation. An unmarried female may be led to think she has "swelling" of the womb and profuse menstruation. The symptoms are fullness of the pelvic region, pain in the womb, enlargement in the hypogastric area, interference with rectal and vesical evacuations, and hemorrhagic shows out of season.

So apt are women to put off inquiries in regard to sexual maladies that uterine myomata attain considerable size before the professional attention is called to enlargements and abnormal states of the genitalia. During the child-bearing period of life the physician suspects pregnancy, miscarriage, and other contingencies of the marital state, but always thinks of cancer, myoma, polypus, and other ranges of morbid action. The unmarried have to be questioned with the reserve due to their condition in life,—innocence always to be conceded, until it is no longer in consonance with adverse testimony. The married woman may endure the closest cross-examination without the thought that the physician may be impertinent. In fact she courts inquiry, that she may become the better informed in regard to her physiological and pathological conditions. She is willing to submit to examinations, and to undergo inconveniences, that a question in her physical condition may be the better understood. If pregnancy be suspected the uterine sound is not to be employed; and there is no harm in waiting to see whether the uterine enlargement be physiological. At four months of utero-gestation the signs of pregnancy are too pronounced to be mistaken. However, in doubtful cases the examinations may be conducted with differentiations in view. Possibly there is ectopic pregnancy (extra-uterine) with impending perils to be considered and promptly acted upon.



## BIMANUAL EXAMINATION.

When the relative size and position of the pelvic viscera of a woman are to be ascertained, the gynæcologist uses the digits of both hands as explorers; and he places the patient in one of two postures. Most operators prefer the attitude of ordinary *decubitus* in ordinary pelvic examinations, but as a general thing I choose to have the woman to be manipulated on her left side, with the limbs flexed on the thighs, and the thighs on the abdomen, the chin almost touching the knees. The surgical or gynæcological table offers better facilities to the operator than either a bed or lounge, yet either of the latter will answer. The patient having been placed on her left side, with her limbs and body flexed as just indicated, the index-finger of the examiner's right hand in the vagina is to palpate the uterus and associate organs as the exploration progresses. Meanwhile the fingers of the left hand are to infold or indent the hypogastrium to insure descent of the pelvic viscera, and to aid in the explorative manipulation. The *Bimanual Exploration* is well illustrated in the accompanying diagram.



Bimanual Examination.

If the patient rest on her back, the examiner can not reach very deep in the pelvic cavity, nor can the left hand so satisfactorily enfold and indent the parietes of the hypogastrium. By the bimanual method the pelvic viscera are pressed upon the vaginal finger, making it easy in most cases to outline and locate the different organs, whether uterus, ovaries, or Fallopian tubes, as well as to ascertain their sensitiveness and relative positions. In the event of deviations from normal states, bimanual palpa-



tion is sure to detect them, and to help in prognostic efforts. Uterine myomata, ovarian cystoma, and salpingian infarctions may thus be discovered and differentiated. In short, complete investigations of pelvic disorders can not be executed without a resort to the abdomino-vaginal mode of conducting examinations.

In the removal of a placenta after delivery or miscarriage the bimanual manipulation alone is successful. In a search for a double uterus, or a tumor of the womb in connection with pregnancy, the bimanual method aids the diagnostician. Of course a distended abdomen can not be freely indented, yet the open palm can be employed to impart a downward force, and to detect fluctuations provoked or imparted by the vaginal digit.

In the removal of a placenta, after delivery or miscarriage, the bimanual manipulation is efficient and effectual, especially if the hypogastric hand push the womb downward where the cavity of the organ can be reached by the fingers of the other hand. In a search for a double uterus, or in a differentiation of uterine tumors, extra-uterine pregnancies, ovarian swellings, and salpingian troubles, the double manipulative scheme is invaluable.

Sub-involution following abortion, morbid conditions of the *os tinæ*, excavated states of the cervix, as well as fissures, indurations, and vegetations, are the better palpated when the womb is pushed downward by the left hand, indenting the hypogastrium, and crowding the womb within reach of the digits of the right hand.

The decubital position of the patient is often the best for the use of a vaginal speculum; while the duck-billed dilator demands a pose on the left side. Inspections of the vesico-vaginal septum are best made with the patient on her left side, and her limbs and body in a flexed attitude. The sound, which is so often used to discover abnormalities of the uterine cavity, is made to enter the canal of the organ when the patient rests upon her side and left hip. In that attitude the *os* is within easy reach, and the womb is held firm and steady by the abdominal and pelvic viscera. Besides, the sinistral posture and the bimanual method of palpation are to be utilized in all stages of labor, the accoucheur rarely examining a parturient woman while she is on her back. The conjoined manipulation advised is the least distasteful and indelicate to the female, hence a potent argument in its favor. A lever-pessary can not be well introduced with the patient in the dorsal attitude. States and degrees of



prolapsion may be best learned through an examination made while the patient is standing upon her feet.

In the discovery of hydro- and pyo-salpinx the conjoint method of conducting abdomino-vaginal examinations must be followed. A sensitive ovary, a small ovarian cyst, with or without salpingian complications, is to be diagnosticated by the bimanual palpation. Circumscribed cellulitis, recto-vaginal hæmatocele, and uterine retroflexion, are also to be manipulated bimanually.

It has been claimed that the expert bimanualist can reach and outline the normal ovary, but that is claiming more than facts will ordinarily warrant. An ovary descending to the Douglas *cul-de-sac* may be felt in some instances, and excised through a peritoneo-vaginal incision. A parovarian cyst as large as a hickory-nut may be differentiated from the ovary itself; but ordinarily the body of the normal ovary can not be felt. I have made out a sub-peritoneal tumor of the uterus which was not larger than a pigeon's egg. In diagnostic palpations of the kind much depends upon the thickness and pliability of the abdominal walls. Experience in bimanual palpation lends skill in the art. I have generally been able to feel the promontory of the sacrum, the spines of the ischia, and any definite point in the pelvis which might be sought. Both the hypogastrium and the perinæum can be indented much more than is generally believed. Forced indentations elicit complaints on the part of the patient, yet endurance of such pressure is marvelous.

In the diagnostication of uterine tumors, while the vulsellum forceps drag downward upon the neck of the womb, the left hand pressing downward upon the hypogastrium helps the uterus to descend. In the dragging process there is no danger of rupturing or of over-straining of ligaments, so that the uterus shall occupy a lower level than it has previously held. Vaginal palpation, with the patient on her back, fails to discover much; while the bimanual method, well executed, discovers what otherwise could not be found out.

In the event of vaginismus, or highly sensitive states of the genitalia, it may be well, if not necessary, to anæsthetize the patient before conducting a bimanual examination. A gynæcologist who is determined to make the most out of his cases will resort to an anæsthetic if that will enable him to be more definite in his diagnosis than he otherwise could be. The use of a cocaine unguent upon sensitive parts may expedite a digital



examination of the genitalia. The sedative may be employed an hour in advance of the contemplated exploration.

In the examination of cancerous states of the womb, bladder, and rectum, care must be exercised not to make vicarious passages with the fingers. I have known a surgeon to make a fortuitous aperture from a friable womb into both the bladder and rectum. While the false passages may not have shortened life, they made the patient's condition more miserable.

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### UTERINE MYOMATA.

A true myoma uteri, or hypertrophy of the muscular fiber of the uterus, not physiological as in pregnancy, but wholly pathological, as in the development of a womb, till it extend the abdomen as much as it is protruded in pregnancy at term, is quite common to be encountered in a gynæcological practice.

From the representative type, which involves the entire organ, to the development of a mere knob on the body of the reproductive viscus, there are many varieties; and to comprehend the range of morbid growths coming within the scope of the topic, a few distinctive types must be considered in general and in detail.

A myomatous womb in the earlier stages of morbid development is usually free from pain or other inconvenience, unless an unusually free catamenial flow be observed. After the hypertrophy has made the organ two or three times larger than normal, the possessor may suspect something out of the usual course is taking place. If married, she naturally charges herself with pregnancy, though the profuse discharges are quite at variance with ordinary gestation. An unmarried female may think her womb has swelled, and that she is too "unwell" at her periods—that she wastes too much—and may consult *sage femmes* for cures.

The symptoms of the sufferer are fullness in the pelvic region, uneasiness in the womb, some interference with rectal and vesical evacuations, leucorrhœa, and pronounced hemorrhagic losses at menstrual periods.

At length enlargement of the hypogastrium leads to suspicious questionings and investigations. The married woman consults her physician, and the unmarried confides in her female acquaintances who are presumed to be wise in such matters. At length an examination or exploration becomes necessary on the



part of the family doctor; and he manages the case with discretion and circumspection. If the womb be as large as a child's head, or bigger, and hemorrhages attend each catamenial *crisis*, the evidence is that a myomatous uterus is to be treated. If there be enlargement without menstrual appearances, pregnancy may be expected, and time taken with placebos to determine the question. The sound should not be employed to measure the depth of the womb till it be certain that pregnancy is not possible. The cervix of a myomatous uterus is hard or firm, while that of a pregnant organ is soft or pulpy. A pregnant womb develops fastest in the fundus; and slowly at the cervix. Finally it is deemed expedient to send a sound into the uterus to ascertain its depth, and the course of the canal through the cavity. If it be curved or contracted, with much weight of surrounding structure, a fibroid or uterine myoma exists.



Uterine Myoma.

The accompanying diagram represents a muscular hypertrophy or uterine myoma. The canal of the uterine cavity is eight or nine inches in depth, with a corresponding enlargement of the womb's parietes. The canal is along the posterior aspect of the hypertrophy, and its course is so near the natural curve of the organ that little obstruction is offered to the introduction of the sound. However, all hypertrophies of the womb are not



so regular; but a curve is developed here and there to obstruct the course of the implement. In fact, I have known a physician to declare that the womb was at its normal depth, two inches and a half, when the real measurement indicated seven or eight inches. The entering end of the instrument had struck some shoulder, pocket, or projection, and failed to pass on to the bottom of the cavity. In some cases it requires much patience and perseverance to make the sound penetrate to the depths of a myomatous womb. If the penetrable depth be only three, or less than four inches in depth, the presumption may be that a miscarriage has recently occurred, and sub-involution exists. In such a condition the bimanual method of examination becomes useful in plying a diagnosis. In fibroma uteri the hypertrophy is not usually suspected till the fundus of the uterus has reached to near the umbilicus. In the event the uneven growth distort the course of the uterine canal, as is represented in the accom-



Uterine Myoma, with distorted course of canal.

panying diagram, the sound should be flexible, and bent somewhat as manipulation is carried on. A steel sound will not follow a sinuous-course. A troublesome point is at the depth of an inch or a little less, where the cervix ends and the body begins.

If the growth be irregular the cervix may get carried behind the pubes, or so deep in the Douglas *cul-de-sac*, that it can not be reached. To overcome the displacement while making a diagnosis I have been obliged to seize the "tumor" with vulsellum



forceps, and drag the organ into a modified attitude where it may be explored. I find it necessary to keep on hand a variety of sounds to explore distorted uterine organs. Sometimes the morbid inequalities can be felt through the walls of the abdomen. However, an hypertrophied womb is not well understood until a sound has explored its cavity. In not a few instances I have found the Simpson too flexible at its point, and the handle too narrow. A broad handle and an unyielding point I have found to be most practical in making explorations in the uterine cavity.



Uterine canal in the anterior part of the Pathological Hypertrophy.

While I have generally found the course of the cavity in the posterior part of the hypertrophy, I have occasionally discovered it to be in the anterior aspect of the tumor. The accompanying uterine hypertrophy in outline presents the anterior course of the canal. The uterus is five times too large, the cavity being eight inches deep. It is a solid "tumor"—a genuine myoma. Such hypertrophies are firm, and vascular near their borders, yet are like cheese inside. The texture is white as a chicken's breast, yet somewhat friable, as if having undergone fatty degeneration. A peculiarity of uterine fibroids is that they are chiefly constituted of "giant fibres," with no red muscle in their construction. So free from vascularity are such hypertrophies on the inside that the friable structure may be scraped away with impunity after the outside envelope has been penetrated. The uterine and ovarian arteries anastomose on the outside of the organ, and by large mouths.



A myomatous tumor of the uterus rarely degenerates into malignancy; and does damage chiefly through size,—through pressure upon other viscera. However, a uterine myoma establishes anæmia, and gives the patient much distress after it is as large as the womb at the end of utero-gestation.

What is called a *sub-peritoneal* tumor of the uterus develops from the outer surface of the organ, protruding in a globular mass, as represented in the diagram. This is apt to be mistaken for an ovarian tumor, and cut for as such. However, it is unyielding, while an ovarian cyst is fluctuating. When encountered it is to be ligated and removed through an abdominal section. I have found sub-peritoneal tumors to be knobbed, like the outgrowths of a potato. Once I assisted Dr. Russell in the excision of two such knobs which grew outward and upward, and were as large as a woman's fists. They were taken to be ovarian before the abdomen was opened. They greatly enlarged during menstruation, and became extremely sensitive. They were transfixed with a needle and ligature, tied with the Staffordshire knot, and then excised. The woman recovered without a bad symptom; and became relieved of a troublesome dysmenorrhœa.



Sub-peritoneal Uterine Tumors.

Negresses are apt to suffer from tumors of the uterus; and have less ovarian cysts than white women. It would be interesting to know the cause of this singular discrepancy; but only the fact is known. A Negress is not apt to have a uterine polypus, but is prone to suffer from *sub-mucous* fibroids.

There is a tumored state of the parietes of the womb, the fibrous and gelatinous masses collecting in the interstitial spaces, yet crowding upon the endometrium. The *multiple tumor* expands the womb, and provokes hemorrhages just as a single myoma does, and can not well be differentiated from the rep-



representative type of uterine fibromas. In a case or two of the kind I was helped to a true diagnosis by the use of a sound. I could detect by the sense of feeling in the hand manipulating the instrument that there was a knobby state of the inner walls of the womb which could only be produced by a multiplicity of tumors. At any rate I felt justified in sending a curette into



the uterine cavity, and pretty severely scraping the endometrium. I then prescribed Squibb's ergot in large doses until specific contractions came on. After several hard throes the mass of multiple tumors came away, and a dangerous hemorrhage succeeded. The flow was checked with a tampon, and did not return, though the patient was anæmic for months. I regard such tumors as somewhat serious in their nature from the fact that, when removed, they bleed profusely. Besides, they must make the possessor quite uncomfortable in one way or another.

Multiple Tumor of the uterine parietes.

Akin to the multiple sub-mucous tumor is the single variety, which seems to be encysted. It develops the womb into an uncommonly large size, and produces hemorrhages at the menstrual epochs. The sound slides smoothly into the uterine cavity, as if a true myoma existed; but the tumefaction can be discriminated if great diagnostic care be put forth. As the sound glides along the cavity of the womb, at a depth of five or six inches, an offset or bulging ridge may be discovered, which arrests the manipulator's attention. Then, with careful palpation with the sound, the expanse or outlines of the sub-mucous tumor may be ascertained with reasonable accuracy.

The treatment for a single sub-mucous tumor is to incise its covering freely; and then expel the mass with efficient doses of ergot. Before a knife is employed the thick side of the uterine walls must have been made out, that no mistake be made with the incisor. I usually dilate the canal of the cervix with the



Ellinger, Molesworth, or other expanding instruments, and then use a long-bladed knife to enter the uterine cavity, and slash the tumor's covering or envelope. If the blade of a knife will not enter the womb deep enough for the purpose desired, a Thomas spoon-saw, of moderate size, may be utilized to lacerate the capsule. The effect of ergot will then be to expel the tumor. If the hemorrhage be profuse when the tumor emerges from its capsular environment, the vagina must be tamponed. Then, as after-treatment, *Mangifera Indica* may be employed in ten-drop doses for a year. The agent restrains undue hemorrhages, and helps a gradual involution. Douches of hot water in the vagina do some good, and should not be neglected.

#### ELECTROLYSIS.

The management of uterine fibroids has been a theme of gynæcologists which has many views. The injection of ergot into the tissues of the tumor promised well at first, but too many fatal issues had to be recorded. Ergot thrown into vital structures provokes a dangerous shock, and acts sometimes as a deadly poison. I have obtained cures with the injection of a few drops of Squibb's extract into the substance of the womb, using a common hypodermic needle to plant the medicine in the uterine tissue.



Sub-mucous Tumor of the uterus.

A few years ago Apostoli, of Paris, France, attended the International Medical Congress held at Washington, D. C., and there read a highly entertaining paper on the use of strong currents of electricity in the treatment of uterine fibroids. His statements were so well made that the scheme produced a profound impression upon the medical mind; and may have made multiple converts if those who followed the exact plan of the great operator had adhered closely to the course formulated. But some methods are designedly so intricate that nobody can follow the artful author.

I have never doubted the sincerity of Apostoli; but when challenged to drive a goitrous tumor of the neck into atrophy with his specifically applied electrical currents, and he declined



the contest, I began to lose faith in his scheme. It would certainly be as easy and practicable to reduce the size of a goitre or thyroid hypertrophy, as it would be to force into atrophy a myomatous womb.

A discouraging feature of the electrolytic plan is that shallow and pretending electricians about the world seized upon the method, and brought discredit upon the scheme.

Dr. G. Apostoli called his plan "A New Method of Uterine Faradization," and described it somewhat at length. The induced current was the one utilized; and the procedure is described as follows: The patient on her back has one electrode applied low on the hypogastrium; the other, joined to a metallic excitor, is carried through the os and canal of the cervix to the bottom of the fundus. The "excitor" is connected with the negative pole. The battery is then set in motion, beginning with a low current, and increasing the intensity progressively and almost continuously, stopping when the pain is great, and starting again when suffering diminishes. This is called *abdomino-uterine* faradization. If a positive plate be placed on the sacrum, a piece of wet leather intervening, and the negative rheaphore be attached to the uterine excitor, the faradization may be called *sacro-uterine*. The *lumbo-pubic* method is to send a current of electricity from the pubes to the lumbar spine, to cure dysmenorrhœa, amenorrhœa, *et al.* This course of current is for virgins. *Recto-vesical* faradization is also practical in the unmarried.

In place of unipolar faradization, *in vogue at present*, Apostoli advises placing both poles within the uterine cavity, and there displaying electrical force. This he calls *double faradization*. This is to hasten involution, and to cure sub-involution.

Dr. Thomas Keith, of Edinburgh, in writing upon the electrical treatment of uterine tumors, discourseth as follows: "The only treatment not surgical is the strong electrical current of Apostoli. I have thrown over all surgical operations for this new treatment, and the longer I follow it the better I am satisfied with its worth.

"To the surgeon, no doubt, hysterectomy is the good and simple plan. He especially resents Apostoli's treatment of fibroids by electricity, for the result is long in coming; it is a slow treatment, requiring great patience, great tenderness of manipulation, and much thinking. A knowledge of electricity is also essential, and the more knowledge on this subject the better; for without it no progress nor improvement can be rea-



sonably expected. Two or three months, if the intervals between the periods be short, may pass away quickly without much sign of amendment, and the patient and friends are apt to be discouraged; or the patient, from the tonic effect which electricity has upon some, feels better, becomes inclined to do too much, overtaxes her strength, gets a chill, (with perhaps pain in the tumor), and a temporary disturbance of temperature; but with patience the result is certain, and more or less improvement takes place. The patient becomes able to walk about and enjoy life. She has no longer the dread of the period constantly before her; she no longer takes to bed days before its appearance; and she no longer needs morphine to relieve pain before or during it. The flow passes without her scarcely knowing it. Then there is no mutilation, a thing abhorrent to most women. This is what Apostoli's treatment—uterine faradization—always does if carefully and intelligently carried out to the end. It does not bring about the disappearance of the tumor, or it does so very rarely; but the size is lessened more or less—one-half, one-third, two thirds tension is taken off every where all around; and bladder irritability from pressure, a common cause of distress, is relieved. In a word, the woman is made well—her whole life is changed. All this can be done without danger to life; and if there be pain during the time the current passes, it is the fault of the operator.

“It is apt to be forgotten that only a small proportion of fibrous tumors need any treatment at all. A number of women go through life unaware of the existence of any growth until it is revealed by some unexpected circumstance. A patient's fears are generally easily allayed, as she feels quite well; and when the matter is fairly explained to her, she is satisfied to let well alone. Yet these simple cases excite great alarm, the story having been invented that patients could not live many months without some operation. Really such cases need not be treated with electricity, nor by anything else! They are best let alone.

“What I now plead for is that for a time all bloody operations for the treatment of uterine fibroids should cease, and that Dr. Apostoli's treatment as practiced by him, should have a fair trial. Those who have hitherto most resisted the introduction of electricity are the best competent to carry it out. They are accustomed to manipulate in the pelvis, and they will not make mistakes of diagnosis, or make them as seldom as it is possible to do.”



Dr. Playfair reports having decidedly benefited with a powerful "induced current" of electricity, women who had such large uterine fibroids that micturition and defecation were obstructed. His experience with a current of 100 millamperes in strength, has been decidedly flattering, though the tumors or hypertrophies were not much reduced in size. The patients were rendered more comfortable. He claims that hysterectomy is not justifiable till the "electro-negative puncture" has been tried and failed. He declares that the "induced current" is a decided hæmostatic in hemorrhagic cases.

At the conclusion of his paper Dr. Playfair gives the following summary ; "The continuous current is capable of effecting much good in certain selected cases, otherwise little amenable to treatment; and its introduction is, therefore, a distinct gain to gynæcology. It is an agent of considerable power, therefore if rashly used is capable of doing harm. It involves the use of a costly outfit; and is both tedious and troublesome to work, hence not likely to come into general use."

Dr. David Smart, of Liverpool, visited the operating rooms of Dr. Apostoli, and made some piquant remarks concerning his methods and manners. He reports that the great "Apostle" of faradization has almost wholly discarded electro-puncture formerly advocated by him. Among other things of interest he said: "Fibro-cystic tumors of the uterus and ovaries are bad cases for electrical treatment. In cases of doubtful diagnosis parts are felt more distinctly, and the diagnosis often cleared up after two or three seances of electricity.

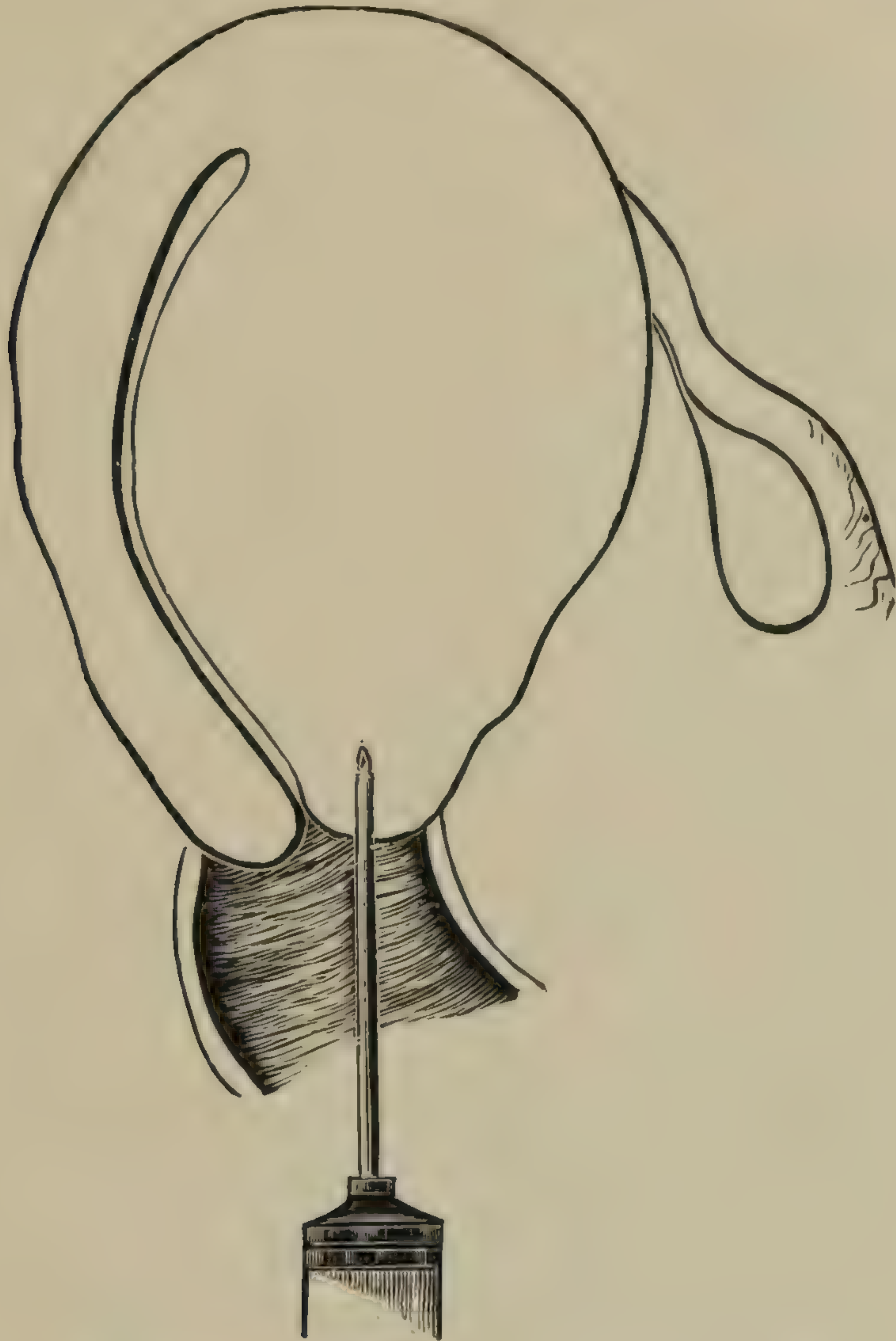
"One short and hurried visit such as I have just described does not enable one to chronicle definite results or form any authoritative conclusions. The Keiths, father and son, regard thirty seances as a fair test, three a week at first, and two a week afterwards. Many visitors to the operating rooms of Apostoli, "come to scoff, but remain to pray."

I take conscientious pleasure in presenting a brief synopsis of the Apostoli treatment, and believe it worthy of trial, though personal experiences do not lead me to be enthusiastic in its favor. Possibly I have not used the electrical currents according to the rules of the "great Apostoli." Inasmuch as I am not given to condemning everything and anything I know nothing about, I commend a careful course of experimentation with electro-therapy, regardless of cost and trouble.

It will be seen by what has been said by Apostoli and the Keiths that only a small *per cent.* of uterine myomata are fit to



be treated to faradization; and that a large *per cent.* of cases are placed among the doubtful. A feature indirectly favorable to the use of electricity is that an operative procedure may be employed if the electrical current fail.



Injecting uterine myoma or fibroid with hypodermic needle.

Instead of employing the electrical method I have been in the habit of using injections of Thuja into the walls of the tumor with a hypodermic needle. Ten drops of Lloyd's tincture of Thuja mixed with twenty drops of water make the preparation strong enough; and that quantity is enough to use at once. The needle should be used every four or five days for three months. The treatment may be entered upon with confidence, for I have never done harm with it, and always have secured some degree of relief,—in some cases the hemorrhages have ceased, and the hypertrophies have gone into gradual involution. In three or four cases the tumors have been reduced one half in size, and the patients refuse to take additional treat-



ment on the ground that they are entirely comfortable. The hot douche is to gush for half an hour on the cervix uteri; and the patient is to take ten drops of *Mangifera Indica* every four hours. The combined treatment has proved efficient in my hands. In some cases the progress is slow and discouraging; and so is it with the electrical treatment. The injections should be thrown a half inch deep; and little shock is provoked. I once injected ergot, but the agent proved too poisonous,—affected the brain too profoundly.

*Thuja* impresses the circulatory functions of the uterus, lessening the volume of blood sent to the organ. This I have demonstrated over and over again.

Pathological hypertrophy of the uterus to a moderate extent is a commoner defect than generally supposed by practitioners of medicine. The sound is carelessly introduced into the womb; and unless an inch too much in depth be apparent, the size is pronounced normal; whereas a quarter of an inch of enlargement should be pronounced upon. Miscarriage is the commonest cause of morbid enlargement of the uterus, hence the question should be put to the patient whether she has ever lost a pregnancy. She need not be asked if the abortion was provoked or not, for the physician should not pry into every personal secret,—he should be moral, but not an obnoxious moralist. Medical men are to dress burnt fingers, and not ask how they got blistered. Women as a rule confess more than is necessary, hence the Catholic church has established a confessional where the smitten conscience, groaning under burdens, may safely be relieved of heaviness. For morbidly sensitive natures the churchly provision is a balm to a wounded spirit.

A womb three inches deep, with a shreddy endometrium; with enlargement and supersensitiveness; with profuse and painful menses; with heaviness in the loins and pains in the back—there is a call for active treatment. Systemically there is a demand for *Mangifera Indica*, iron, and arsenic; and locally hot douches should be applied once a day, a half hour being expended in the flow of water. Dry heat to the abdomen (hypogastrium) has a place in the treatment, and may be administered through the agency of hot plates, one being heated while another is in use. The plate when applied may be wrapped in a towel, small shawl, or piece of flannel. Hot fomentations of hops stain the bed and clothing, and poultices are a nuisance, though they may be curative.

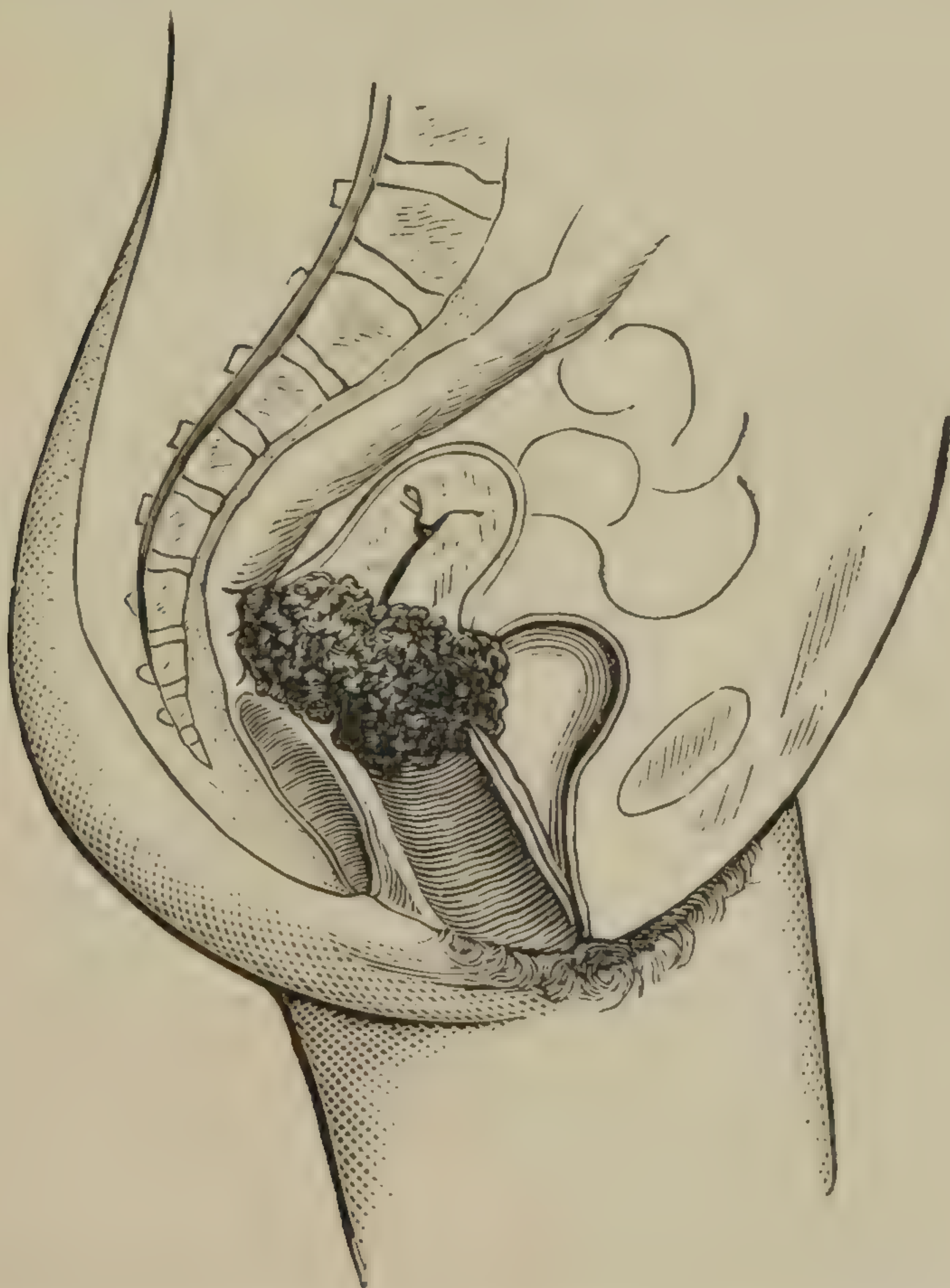


## SECTION X.

## HYSTERECTOMY.

The uterus is to be excised for several conditions;—for cancer of the organ, for pathological hypertrophy, and in the execution of the Porro operation

Hysterectomy is practicable through the vagina, yet is not easy of execution in any case; and is quite impossible in many conditions. There is not room for manipulation in most instances, especially if the womb be firmly fixed through malignant infiltration.



Cancerous cervix, with encroachment of the disease upon the rectum and bladder.

Cancer of the cervix in its earlier stages may be excised with safety and efficiency. However, if the malignant disease involve the bladder and rectum as represented in the accompanying diagram, there is little hope of removing the entire morbid



mass, and not trench upon the adjacent and involved structures. To excise a cancerous cervix, and at the same time establish fistulous communication with the bowel and bladder, one or both, would be a questionable operation, even if the progress of the disease do as much sooner or later.

When the epithelioma is confined to the uterine cervix, and the morbid invasion has not reached the parietes of the adjacent organs, it is practicable to excise the infected and infiltrated mass, so that the disease shall not manifest itself again beyond or above the incision. I do not mean to be understood that such a result might be attained in the majority of cases, but a minority—in occasional instances. I would say that if the excision be well done; and systemic remedies be persistently plied, at least a year's exemption may be obtained, a year of comfortable living may be secured, more or less—six months for one, eighteen months for another. Experiences warrant me in making this assertion. In nineteen cases out of twenty a fatal result will be reached within a period of two years. However, is not a year of comfortable life worth the trouble and expense of a surgical operation? The wounding need not be painful, and can not be dangerous. In four weeks the traumatism is over, the cut has healed.

But the operation must be carefully executed—the diseased parts must be thoroughly removed. Vulsellum forceps must be carefully fixed on the diseased cervix, and the handles fixed with the snap. Then the womb is dragged downwards till the grasp of the toothed forceps can be seen in the aperture of the vulva, and the cervix felt beyond the teeth of the instrument. Now, with strong scissors, or a knife, the excision commences, care being exercised that the cuts, as they are repeated, do tend to the removal of all the indurated tissue, the part removed being cone-shaped, and the wound in the uterus correspondingly cup-shaped. Or, the wound shall be wedge-shaped, the thin edge being as deep as practicable, and quite in the median line. The bladder is not to be endangered, and the rectum is not likely to be wounded. The cutting is to be done slowly and well. What occasion can there be for haste? The patient is under an anæsthetic, and there is no troublesome hemorrhage. While the perinæum is held back with a duck-billed speculum the operator can see and feel the structures severed. I prefer strong and long shears to execute the cutting, though a curved and blunt-pointed bistoury is sometimes useful to make an incision at a given point. As the last cut or snip is



made the amputated uterus bounds upward to its accustomed place, and the vulsellum forceps hold in its grip the diseased and severed cervix. A soft tampon is to be crowded into the vagina and against the stump of the excised uterus. This prevents undue bleeding after the patient is left in the hands of a nurse. The following day the tampon is to be removed, and the wound dressed with the following semi-caustic application:

R Cosmoline ℥i,  
 Salicylic acid, grs. x.  
 Chloride of zinc, grs. ii. .

This may be applied through a vaginal speculum, or a uni-valve, a swab or brush being the medium of application. Once a day will be often enough to apply the dressing. After the wound has healed, and seemingly a wholesome cicatrix is present, the cicatrization should be inspected and palpated every few weeks for a year or more, or till it be quite sure a malignant activity is not re-asserting itself.

Such, in brief, is the method of excising the cervix uteri to get rid of cancer which has fastened upon the neck of the womb, and is both practicable and surgically justifiable. After the operation the constitutional treatment is to be such as should be employed in systemic syphilis, pulmonary phthisis, mesenteric tuberculosis, anæmia, and other devitalizing states of the organism. The food should be nutritious and stimulating. Oysters, fatty fish, eggs, cream and almost any palatable articles of diet.

#### VAGINAL HYSTERECTOMY.

By the heading is meant the removal of the womb through the vagina. A cancerous state of the body of the organ is the condition demanding the operative procedure. If the entire womb be enlarged, fixed, and unquestionably cancerous, it may be a question whether the operation be justifiable or not. If the patient survive the surgery, yet is to live only six months or so before the disease in some form is to be followed by a fatal result, it becomes questionable whether the operation is one that should be executed. It is generally best to be conservative, letting the case alone. But if the cervix be all diseased, and the body of the organ involved, the only hope of improvement is in hysterectomy; and some surgeons advocate taking the diseased uterus through the vagina. To do such a capital operation calls for a critical knowledge of the anatomy of the organs of the pelvis. The bladder and rectum are to be con-



sidered, the ureters, the uterine arteries, and the ovarian connections. If the cervix uteri be expanded with cauliflower excrescences, its outgrowths may be trimmed with scissors; the remainder is then seized with vulsellum forceps and dragged upon till the operator can carefully cut through the vagina as it connects with the uterine neck in front, the knife dissecting the bladder from the uterus. As the incisions are extended laterally, and backwardly, the uterine arteries may be severed, and much blood set free, yet snap forceps will soon stop any untoward flow. Then the posterior connection of the vagina with the cervix is to be dissected with scissors, the cutting blades keeping close to the uterus, and not opening the Douglas *cul-de-sac*, though there is danger of opening into the peritoneal cavity sooner or later. After the fornices of the vagina are freed all round the uterine cervix the womb may be dragged still lower, and a finger be made to feel its way upward upon the lateral aspects of the uterus. A cleaving spud is also used to cleave a way upward till a long forcep clamp—Keith's—can be made to grasp the salpingian ducts, and ligaments of the ovaries, including ovarian vessels. One side being thus treated the other may be similarly dealt with. The two pairs of long clamp forceps are now dragged upon till the spud and the finger cleave the womb from its enveloping capsule of peritoneum, and freed from all connections. The long and strong clamp forceps are to be left in place for a day or two unless the masses gripped be ligated to prevent ovarian and anastomotic hemorrhage. If the peritoneum be cut—be opened from vagina to abdominal cavity—there will be no hernia of intestinal loops, and all fresh apertures will heal. The opportunity for drainage is ample and saving. If the long clamp-like forceps be kept on two days, no hemorrhage will follow their removal. Both ovarian and uterine arteries may be held in the clamp-like compression. Besides, it is practicable to tie either vessels through the vagina. Such, in brief, is the way to execute hysterectomy through the vagina. If the blades of the clamp-forceps be made narrow at the bight, intruding intestine is pushed away by the slanting bulge of the jaws. Without proper implements the operation can not be executed. As the womb is dragged downward, till its upper end can be manipulated, a ligature may be thrown around the mass which adheres to it, embracing the ovarian vessels. This would relieve the continuance of the clamp forceps, and simplify the operation. After the sacro-uterine ligaments are severed in the progress of the operation



the womb becomes mobile at once, and readily manipulated. It should be remarked that a vaginal hysterectomy begun but not executable from some mishap or obstacle, may be transformed into a supra-pelvic operation—into abdominotomy.

Freund's operation for removal of a carcinomatous womb is to open the abdomen, and then prepare for ablation of the organ, if the execution be practicable. The broad ligaments are first clamped with long bladed forceps, and then tied in three compartments. The ligatures are called the upper, the middle, and the lower. The latter is to be carefully placed with a needle so as to include the branches of the uterine arteries as they go to the neck of the uterus and upper part of vagina; in placing this ligature the ureters, as they enter the bladder, are to be avoided—a careful matter—and the bladder itself is to be left intact. The ligature may enter the Douglas *cul-de-sac*, and pass between the bladder and uterus. This is to be a double thread, one part to be used on one side and the other on the opposite lateral half of the uterine envelope; and the ends of the two are to be tightened as the uterine neck slips from its capsule. The middle ligature embraces the round ligament and adjacent structure of the broad ligament. The upper ligature surrounds the ovarian artery and adjacent structure. The uterus may then be severed from its connections, *ablated*. Any enlarged or bleeding vessels are to be ligated, and all ends of ligatures are to come out through the abdominal wound. The toilet of the peritoneum is to be the same as in other laparotomies, dry and clean. The abdominal wound should admit a drainage tube, the kind being the choice of the operator.

The operation is attended with a high rate of mortality; yet in consideration of this point it must be recollected that an untouched cancer of the womb always kills.

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#### THE PORRO OPERATION VERSUS THE CÆSARIAN SECTION.

In the event a child at term can not be born in the natural way, the question arises whether its life shall be taken—it shall be eviscerated—to save the life of the mother;—whether she, too, shall not assume some risk to save the life of the child. If there were no other mode of delivery except the normal, it would be the mother's right to live if her life can only be preserved at the expense of that of the child.

In a case of "impaction" where podalic version is impossible, and forceps will not rescue the child, the accoucheur has to as-



sume an awful responsibility,—he must perform craniotomy,—must kill the foetus in order to render its body deliverable, or risk the mother's life in Cæsarian section to save the life of the child.

Several well authenticated cases of untimely delivery which turned out successfully, have been recorded, a cow's horn doing the ripping. This violent method of delivering a child has stimulated surgeons to more than rival bovine methods. However, the Cæsarian section, in years gone by, proved so terribly fatal that efforts have been made to improve upon old means and modes. Dr. Sænger, of Leipsic, claims to have introduced modifications into the manner of treating the wound in the uterine parietes, and to have in other ways rendered the operation less dangerous, so that the operative procedure, as it now stands, is spoken of as the "modified Cæsarian section."

Under Baudeloque, a half century ago, craniotomy was considered a highly scientific method of conducting a delivery which was not practicable by "turning" or through the aid of forceps. With the famous accoucheur as authority, the rural practitioner felt justified in using the perforator when labor was prolonged or threatened to eventuate disastrously. The rights of the child were not heeded,—those of the mother alone were consulted. The medical man forgot the force of the commandment which declares, "Thou shalt not kill."

A canon of the Catholic Church charges that the child, as well as the mother, has a soul to be saved; and that if it be not possible to deliver an infant without killing it, a sin is committed when the murderous deed is done. A rule of the church is that an unbaptized child is unregenerate.

While this is religion and not science, it may be suggestive that in the enforcement of scientific methods the conscience may be consulted,—there may be a better way;—science advanced may save the lives of thousands of infants every year; and not seriously endanger the life of a mother. While the improvement is not unquestionably demonstrated, considerable progress in that direction may be offered in evidence.

During the parturience of Marie Louise a critical period came when it was doubtful whether the life of the Empress could be saved without sacrificing that of the child. In this supreme moment Baron Larrey was commissioned to present the matter to the Emperor, that the accoucheurs might be relieved of some of the great responsibilities then surrounding them. Napoleon, great on trying occasions, said that if one



life must be sacrificed, it is the mother's right to live,—that rule must prevail,—*she must have the preference*; but that you may do your best, you must forget that your patient is an empress, and treat her as you would a bourgeoisie of the Faubourg. Under imperial orders the King of Rome was saved from obstetrical murder.

Tradition has it that Julius Cæsar was “from his mother's womb untimely ripped,” but whether that be the fact or not, the peculiar mode of accouchment has become historic—a child delivered through an abdominal and uterine incision, has been denominated *Cæsarian*.

#### CLASSIC CÆSARIAN SECTION.

By “classic” is meant the ancient or historic method of extracting a child from the uterus, the procedure consisting in making an abdominal and then a uterine incision that the infant may be rescued from its mother's womb without losing its life. After the Cæsarian delivery the placenta is removed, the traumatic aperture in the uterus closed with sutures, the organ encouraged to contract by pressure of the hand, and then the abdominal incision is united with sutures, and the belly supported with long strips of adhesive plasters. The entire operation being made in a few minutes time and in the simplest possible manner.

After it be determined in a given labor that the child can not be delivered in the natural way on account of pelvic deformity, or other obstacle;—that podalic version be impracticable;—that forceps be not utilizable, the important question arises whether craniotomy and evisceration shall be attempted, or the Cæsarian section performed. If the abdomino-uterine cut be not exceedingly dangerous to the mother, the child should be rescued in that way, or in some modification of that method, say by the Porro operation.

#### THE MODIFIED CÆSARIAN SECTION.

The “classic” operation, so called, has been modified by Sænger and others, and proven to be so much less dangerous that it has received the name of the “Conservative Cæsarian Section.”

That the Sænger modification may be understood I will quote it as translated: “The technique of the conservative section is very simple; the operation is by no means a difficult one, and it is time every practitioner should inform himself as



to the method of performance. Rules:—empty the bladder, shave the pubes, and carefully disinfect the abdomen, vagina, and external genitals. Incision in the linea alba, about 16 cm. long. Passage of three sutures through abdominal walls, for the purpose of quickly closing the cavity behind the uterus while it is everted. Incision in the uterus either *in situ*, or after drawing it out through the abdominal incision. Removal of the child (preferably head first). Entire eversion of the uterus, placing a large sponge under it, and drawing abdominal incision together under it by means of the sutures. Surrounding the uterus with napkins, and manual compression of the cervix. Placing the elastic ligature. Waiting for the spontaneous separation of the placenta, and its manual removal, and assuring one's self that the os internum is open. Placing iodoform in the uterus, and, if it seem necessary, washing out the cavity with carbolic or sublimate solution. Placing the uterine sutures. Preparatory steps: stripping of the peritoneum to the extent of 5 cm. each side. Resection of muscular tissue 2 cm. each side. Deep sero-muscular silver sutures; superficial sero-serous silk sutures. Removal of the provisional elastic ligature. Cleaning of the uterus. Iodoform along the suture line of uterus. Dropping of womb into abdominal cavity. Suture of the abdominal wound, and dressing as after ordinary laparotomy. After treatment purely expectant in the absence of symptoms."

Inasmuch as the average medical reader may not understand the greatly abbreviated rules of Sænger, I will repeat some of them in more extended language, still employing translated words from the pen of the author. "Prepare the abdomen for the operation; make abdominal incision in linea alba; not often necessary to turn out the uterus, but make uterine incision with the organ *in situ* in a *median* course; not going too low towards cervix. The foetus is delivered most easily and rapidly by the feet! A napkin is spread over the intestines; another envelops the uterus. Throw elastic cord or rope around lower uterine segment, for which could also be substituted manual compression or torsion of the uterus around its longitudinal axis. Manual detachment of the placenta, disinfection of uterine cavity (iodoform), in which is placed a sponge or gauze until the deep sutures are inserted.

*Suture*:—the peritoneum is loosened and bent over; resection of the musculature is not necessary. *The main point is the close double suturing of the uterine wound*,—the deep sutures embrace



the peritoneal covering and the womb's muscular parietes, but not the endometrium. From eight to ten silver wires constitute the seam. The interspaces between the silver sutures are drawn evenly together with an over and over silk suture. Then close the abdominal incision with sutures of silk, iodoforming the uterine wound and the abdominal as the suturing goes on. If the uterus is taken through the abdominal wound it is not to be returned till the sutured seam is dry—free from oozing blood, even after the provisional rubber band is removed. No drainage tube is necessarily demanded, though it may be needed. In Leipzig, Dresden and Innsbruck, nineteen cases of the “Conservative Cæsarian section” had been executed at time of report, with eighteen recoveries. Such a ratio of success rivals the best ovariectomy, and is hardly credible. The rate is nearly 95 *per cent.* which has been attained is no other series of Cæsarian sections. Much would depend upon early operations. After a woman is *in extremis* through ineffectual attempts to deliver *per vias naturales*, the Cæsarian section could not be reasonably expected to succeed.

In a discussion which followed Sænger's report, Dr. Shauta remarked that if the uterine incision hit upon the placenta the operator may penetrate it—lacerate it—or detach it. He thought it preferable to perforate it directly with the hand,—that there would be less blood lost, as in placenta prævia. The foetus should be extracted by that part nearest the wound, or most convenient to be grasped by the hand. If the head present downward the feet are to be seized;—if the head be handy to grasp, take it along in advance. He would utilize the rubber cord around the cervix or lower segment of the womb to save hemorrhagic losses.

Sænger declared in favor of silver sutures from the fact that they held the traumatic surfaces of the uterine incision in steadier apposition than silk.

Dr. Freund, of Strasburg, related a case of Cæsarian section in which, despite the deep silver sutures, the hemorrhage was so profuse that the rubber rope had to be re-applied, and the Porro operation performed.

Dr. Fehling would turn the unopened uterus out of the belly, use the rubber compressor or ligature, seize that part of the child which presented in the wound, empty the uterine cavity, and close the wound with silk sutures.

Dr. Zweifel would perform the improved Cæsarian section; and preferred it to the Porro operation, which took away the



woman's prerogative to bear children. If the modified Cæsar-ian delivery was as safe as that of Porro, and he believed it so to be, it was infinitely preferable.

Dr. Leopold believed it was best to turn the uterus out of the abdomen, as the organ served to plug the opening while the operation went on to a finish. The Sænger method of loosening the peritoneum was *not essential*.

The anæsthesia was to be profound. As the elastic ligature is loosened the uterus should be compressed with the hand. Catgut ligatures should be avoided.

The discussion brought out many points, yet not as many as might be desired. As the rope ligature—the elastic cord—goes on, the ovaries *adnexa* go folding downward, and the ovarian artery gets compressed. Americans have a better fastener than the clamp forceps used abroad. The silver sutures are fastened with twists, and the ends are coiled with forceps to prevent their jagg- ing the peritoneal structures. A glass drainage tube is to reach the uterine cavity through the canal of the cervix. This ensures drainage, and admits of douches of warm water. The dissecting back of the peritoneum and wedg- ing off the uterine walls are useless complications. The su- tures for the uterus should be silk, with a needle on each end of a thread eighteen inches long, so that the punctures can be made at the endometrium without wounding it; and all deep sutures should be inserted before the tightening and tying com- mence. Each suture is to be drawn snugly, the fingers helping to press the deep parietes together. When all are knotted and the ends snipped off, a single needle and thread whips over and over the peritoneal edges. Then the seam is dry and firm. The traumatic exposures are dusted with iodoform, a soft com- press is placed over the wound in the belly, and adhesive strips hold this in place.

If the peritoneal cavity be not dry and clean it should be drained with a glass tube. I employ a small glass pipette with lint on one end to use as a plunger—to go to the bottom of the large tube to draw forth a specimen of the fluid in the abdominal cavity. While the operation is going on folds of omentum and coils of intestine may appear in the wound and become annoy- ing by their presence. These protruding masses may be held back by a large flat sponge or napkin of linen.

The threads in the uterus, if of silver, become covered with lymph; and dissolved if of silk.



Vomiting is a general symptom, with nausea, fever, thirst, and restlessness. After the fourth day the danger subsides, and the condition of the patient is that of recuperation. The critical days are the third and fourth. If a high fever come on the drainage is bad, and must be improved upon.

Quite warm enemata are to be repeated often—every hour or two—till flatus escapes from the bowels. A free discharge of gas is a welcome sign. A fecal evacuation is favorable.

#### THE PORRO OPERATION.

The Cæsarian section, modified by Porro, consists in opening the abdomen, throwing an elastic cord over the uterus, and sliding it downward until it encircle the uterine cervix, or the lower segment of the organ, moderately constricting the womb's neck till the body of the viscus is dragged through the abdominal incision, its contents extracted through an aperture made in the uterine parietes, the child taken head or feet foremost as may be convenient, and then the placenta. The constricting rubber cord or rope prevents bleeding, especially when tightened. The uterus is to be transfixed with a couple of common knitting-needles, which keep the constricting medium from slipping off, and the remnant of womb from dropping back into the abdomen. The major part of the uterus, including the ovaries, Fallopian tubes, *etc.*, is then amputated, the excision being made three quarters of an inch from the transfixing needles and strangulating cords. The stump is to be short, but not so much so as to endanger a tearing out of the needles. The abdominal incision is next to be sutured above and below the uterine stump, no drainage tube being needed, as there is no traumatism inside the abdomen. Iodoform is used to dust the abdominal wounds as the sutures draw the borders together, and the face of the stump is to be well dusted with iodoform. Strips of rubber adhesive plaster cross the wound to hold the borders steady; and over these strips a compress of old linen or cotton cloth (iodoformed) is placed, and held with ties or adhesive strips. By this modified Cæsarian section the child is saved as well as the mother, though the latter loses her reproductive functions. But, in a woman who demands a Cæsarian operation, the womb is an organ of questionable value. However, the surgeon is not justified in destroying a function unless a compensating gain be thereby made. If the operation be palpably safer than the modified section of Sænger, as I am convinced it is, the loss of the womb is not to be seriously estimated in a



comparative consideration—in the weighing of losses and gains. There has been considerable display of sentiment in regard to the effects of ovarian and uterine removals upon the mental condition of unsexed women; but the operative gynæcologist who has repeated opportunities to prove that no pronounced mental, moral, or social changes follow ablation or disorganization of the reproductive organs of the adult woman, pays little attention to the speculations of the mere theorist.

Tait declares that the operation of Porro is so simple that the average obstetrician may execute it with ease and safety to the mother and child. Besides the contents of a pocket-case of instruments, two feet of rubber tubing to strangle the womb, are necessary. The knitting needles may be borrowed from the housekeeper's reticule. A scalpel and scissors are necessary, but are to be found in a pocket-case. Glover's needles for closing the abdominal wound will be in demand in due time.



Incising uterus through abdominal wound.

The occasion for a Porro operation being present, the work of preparation is brief, especially if the patient be losing ground. Chloroform is the best anæsthetic. The operator snips away with scissors the pubic hair, and sees that the abdomen is clean. A catheter empties the bladder; and when the patient is insensible the scalpel cuts through skin and fat from the umbilicus to the pubes. A small flow of blood here and there, from cutaneous vessels, is to be checked with snap forceps or pressure of the finger; and the knife and grooved director incise the tendonous linea alba. A fold of dense tissue is raised with the toothed forceps, and a short cut—aperture—is made in it. This is enlarged up and down till the fingers can be utilized as a guide for the knife to lengthen the wound in the peritoneum. Let the wound in the tendonous walls of the belly be about as long as the one in the skin, and make dry with sponges. Slide



a scrupulously clean sponge upward in the cavity of the peritoneum to keep the intestines from coming down and getting in the way. Raise the uterus with the hands, and slip a rubber rope over its fundus, and slide it downward as low as practicable, the fingers preventing a knuckle of intestine from being compressed by the elastic cord. As the rubber rope slides downward it indents the upper borders of the broad ligaments, and does not touch the ovaries, oviducts, *et al*, but gets below them, yet the ovarian vessels get constricted. The rubber cord is tightened, and fastened with a knot, or clamp-compressing forceps will do. The uterus at its fundus is incised as in the Cæsarian section, the direction of the cut being parallel with the longitudinal course of the organ, and not crosswise or from

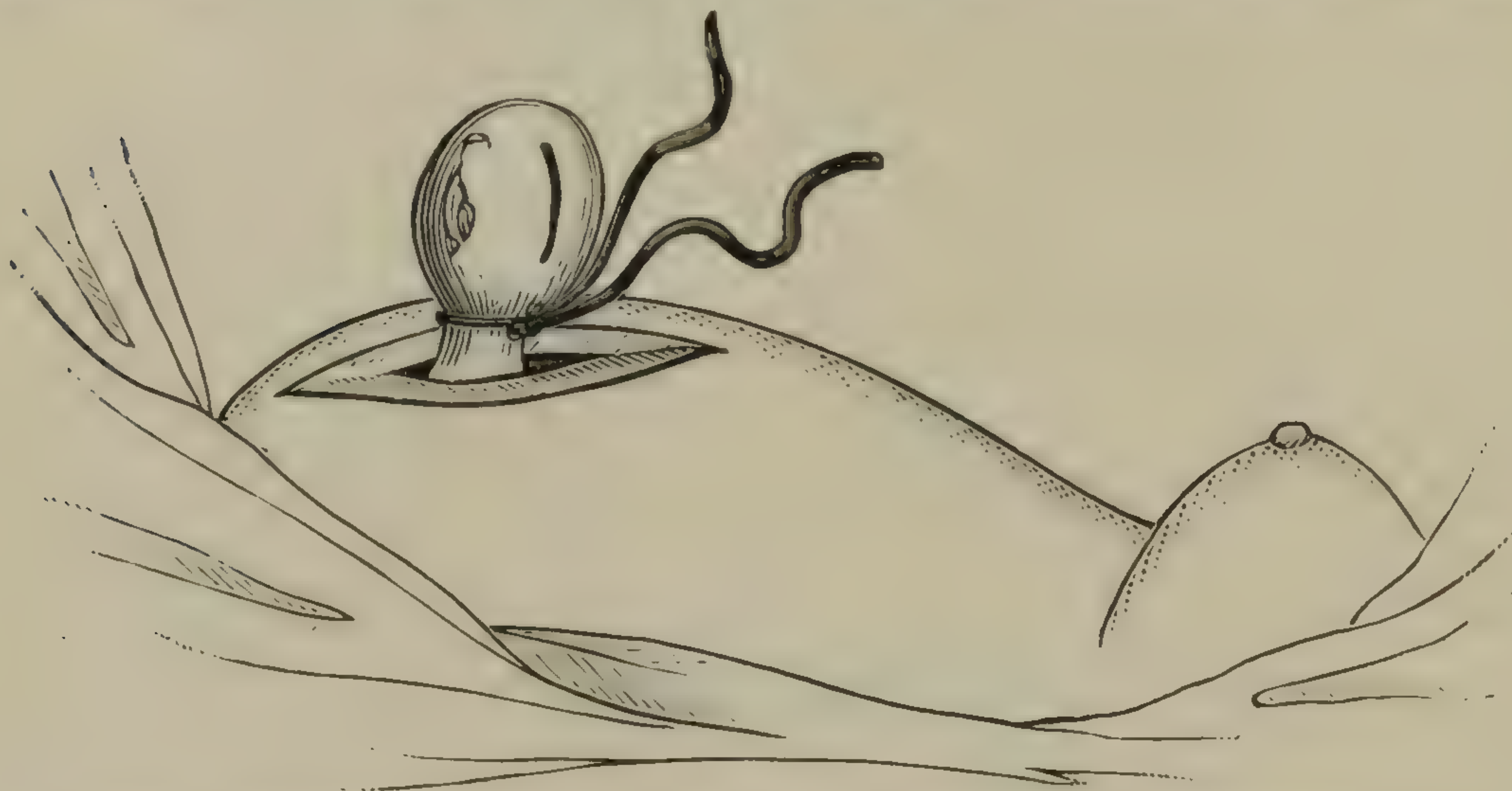


Removing child through abdominal and uterine incisions.

side to side. It is best to avoid the placental attachment if possible. To encounter it directly would be a misfortune, or, at least, perplexing. However, the obstacle is to be overcome by rapidly enlarging the aperture in the uterine parietes, and disengaging the mass directly, that the child may be quickly rescued from a condition of impending peril. As soon as the womb



is emptied of its contents, the elastic cord is to be tightened, and the womb dragged through the abdominal aperture, when it is to be transfixed with knitting-needles and amputated, the stump occupying the lower angle of the abdominal wound, though a closing suture or two may be needed to make that part of the incision snug. Iodoform is to be employed on fresh or traumatic surfaces. Several sutures are needed to close the aperture in the abdomen above the stump. The amputation should be within less than an inch of the knitting-needles and cord. The fastening of the rubber rope may be by a common knot, yet a simple fastener devised by Mr. Autenreith and myself is preferable to a bungling knot. One turn or surrounding of the strangling cord is as good as a second or double wrapping. An objection to the tubing of Tait is that it does not compress

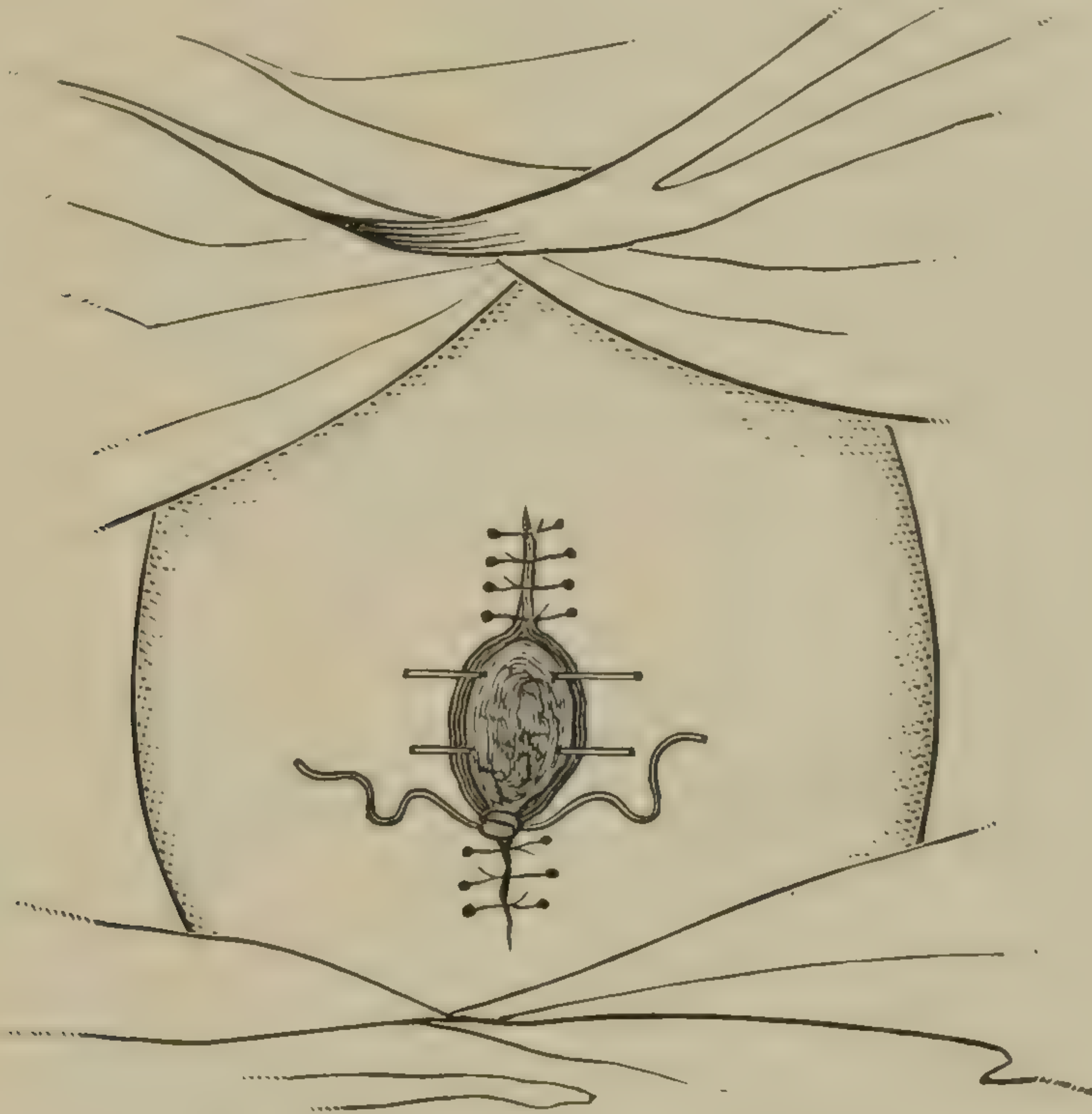


Lower uterine segment constricted with rubber cord or rope. The ovary and Fallopian tube on one side is seen, and the incision in the womb through which the child was taken.

as effectually as a solid cord. To transfix the tubing with needles, as advised by Tait, would be to endanger the integrity of the elastic band, and interfere with any tightening or loosening that afterwards might be needed. The elastic cord and the needles may be removed on the fifth day. The stump shrinks, yet the elasticity of the rubber cord follows the shrinkage. In a short time the circulation in the old vessels is obliterated; and in two days the borders of the uterine stump blend with the traumatic abdominal walls, and become a part of the walls of the belly, cicatrization ending the healing process. The scar is not tender nor irritable. Once such a perversion of function and transformation of tissue would not have been considered possible. In some instances not even profound shock attends the hysterectomy or uterine amputation.



It should be remarked that, if blood from the wound in the uterine walls get into the peritoneal cavity, it should be removed with sponges or warm water douches; and it would be wise to employ the glass drainage tube of Keith or Tait. The implement is to be utilized above the uterine stump, and between sutures employed to close the abdominal aperture.



Uterine stump encircled with rubber cord, and transfixed with needles.

No antiseptics, except iodoform in the abdominal dressing, need be employed. Let the hands and implements be scrupulously clean, and the peritoneal cavity kept free from carbolic acid, mercuric bichloride, *et al.*

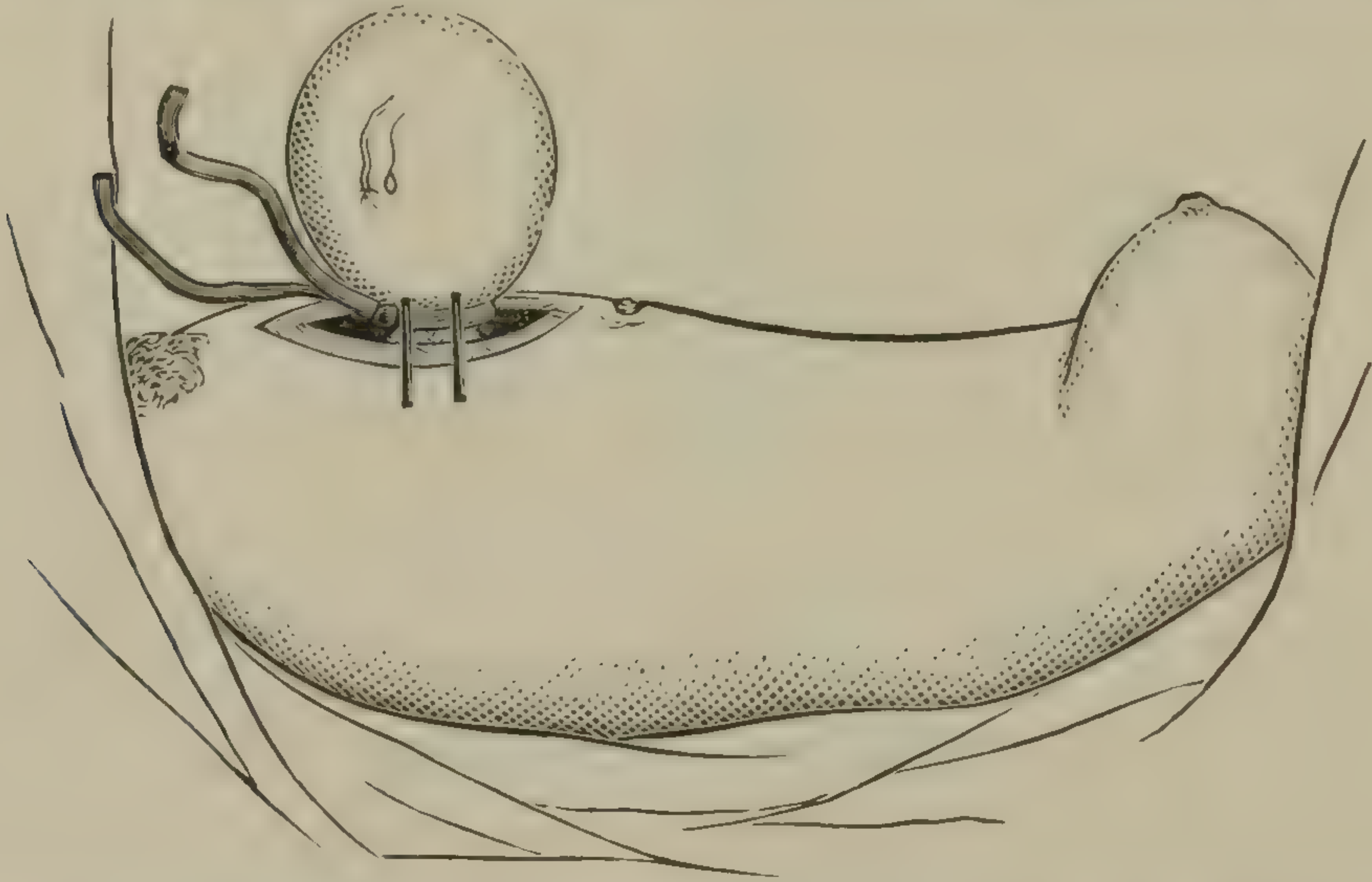
The patient is to be treated as after laparotomy in general. Sulphate of magnesia in broken doses, and hot enemata, favor the escape of flatulence. The stomach should not be chilled with ice or iced drinks. A sip of ginger ale now and then is refreshing, and helps to suppress nausea. Cold table tea is generally well received, if given in moderate quantities.

#### HYSTERECTOMY TO GET RID OF A TROUBLE—SOME UTERINE FIBROID.

To illustrate hysterectomy for the cure of a troublesome uterine myoma or fibroid, I will report in brief an operation of the kind I executed on the 26th of May, near Hoagland, Ind. The patient was unmarried, and rising forty years of age. The



uterus had been hypertrophied more or less for two years, and was painful and hemorrhagic; in size about that of a womb at six or seven months of utero-gestation. I snipped the pubic hair with scissors, and used a catheter to be sure the bladder was empty. Assistants administered chloroform and rendered other valuable service. I made the usual abdominal incisions, and came at once upon the enlarged womb. To my surprise, the most bulging point of the tumor had become adhered to the abdominal parietes, the connection reaching the rectus abdominis muscle. In clearing this some blood reached the peritoneal cavity. After this severance, which took nearly half an hour to execute, the hypertrophied structure was seized with vulsella, and slowly dragged through the abdominal aperture. During the dislodgement I had to enlarge the wound upward to



Uterine fibroid lifted through abdominal incision, strangulated with rubber rope, transfixed with needles, and ready for amputation.

a point above the umbilicus, and to go clear to the pubic symphysis,—care being exercised not to cut into the bladder. Besides, I used the catheter to empty the viscus, and to see how high it reached in space about the pubic arch. After the tumor had been dislodged from its bed in the pelvis, it projected like a huge mass from the hypogastrium. The right ovary was sound, but the left had several small cysts projecting from it.

The rubber rope was thrown over the lump and sent deep into the pelvic cavity. Fingers felt that the cord came directly against the hypertrophied womb and did not embrace a loop of intestine. While applying the rope protruding masses of intestines gave much annoyance. At length an assistant's hand held them *in situ*. The constricting cord was knotted to cut off the blood supplies. Knitting needles were made to transfix



the tumor close to the rubber cord; and then a scalpel with carefully made cuts severed the mass near the needles. The mass divided was white as if blanched, and bloodless. The fiber was of the non-striped variety, but coarse and immensely hypertrophied. I used iodoform upon the stump; and while suturing the wounds above and below. I employed a glass drainage tube between sutures above the stump. This was to get rid of oozing from the traumatism made while detaching the tumor from the inner walls of the belly. Adhesive strips, and a compress sprinkled with iodoform, constituted the dressing. The patient exhibited some shock, yet rallied without an onset of fever.

I will give the daily report of Dr. J. L. Smith, the attending physician. No skilled nurse was in attendance, but a woman served who never saw a surgical operation before. But, as will be seen, there was not a call for the highest order of nursing ability.

Daily report May 26th, 1890. Restless, with pain after operation; gave anodyne. 27th. Temperature  $98\frac{1}{2}$ , pulse 85. 28th. Temperature  $100\frac{1}{2}$ , pulse 96. 29th. Temperature  $100\frac{3}{4}$ , pulse 98. Had a restless pain in bowels; eructations of gas. Gave sulphate magnesia. Injection was followed by passages of wind, and some relief. 30th. Feeling quite comfortable. Temperature  $100\frac{4}{10}$ , pulse 94. Bowels moved naturally. Appetite strong. I took off rubber rope, no bleeding. This is the fifth day. 31st. Temperature 100, pulse 100; no disturbing influences. June 1st. Temperature  $100\frac{1}{2}$ , pulse 96. Ravenous appetite, but complains of the hot weather.

June 2d. Temperature 101, pulse 102. Got some cold; feverish; and cough gives pain in bowels. Tendency to diarrhœa; gave morphia, which afforded much relief. June 3d. Slept well for six or seven hours; feels every way better than since the operation. I removed needles. The stump is dry and crusted. Drainage tube worked well. Could pump out all fluids nicely. Removed it yesterday. Not much pus below stump; but some offensive odors. Passed urine freely from the very first. No call for catheter. Patient has been cheerful and hopeful from the start. June 4th, 5th, and 6th, no untoward symptoms, and daily evidence of rapid recovery. The crusty slough came off to-day, and active granulation was going on beneath. I supported the edges of the chasm with adhesive strips and a light bandage. There has been no discharge from vagina. Patient



talks, jokes, and laughs, as if nothing serious had happened to her. Nothing adverse can happen to the case.

At the end of three weeks from the operation the healing process had cicatrized the stump, and completed the cure. Altogether it was a more serious achievement than an ordinary Porro operation. The uterine structure was more compact,—the parts to be constricted were denser,—the stump was larger and not so easily managed. In one respect it was easier to execute,—there was no child to extricate from the uterine cavity. In other respects the two operations are quite similar. The calls for Porro operations are few, while hysterectomies to get rid of uterine fibroids are multiple.

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### RUPTURE OF THE UTERUS.

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Rupture of the uterus during pregnancy is not likely to be discovered until collapse from shock and hemorrhage carry the woman beyond the rescue of surgical aid. It would be impossible, or next to it, to carry the hand through the vagina, the uterine cervix, and the rent in the womb, and in the peritoneal cavity seize a leg of the child, or the two legs, and drag escaped foetus within the womb, and deliver it *vias naturales*. That would be too much to expect of an operator though he be both bold and adroit. If the rent took place gradually and the body of the child filled the rent in the uterus, so that the hemorrhage was not profuse or exhaustive, the accoucheur would not know at once whether he had an extra-uterine pregnancy to deal with, or rupture of the uterus. The prominent symptoms would be about the same. In the emergency it would be best to open the abdomen at once; and act further upon the conditions developed by the abdominotomy. If an extra-uterine pregnancy be disclosed, why, attend to the needs of the calamity there and then. Ligate the investing membranes, remove the foetus, and treat the case as if it were an ovariectomy.

If the accident proved to be the rupture of a pregnant uterus with the child in the abdominal cavity, the “modified Cæsar-ian method,” as suggested by Sænger, should be carried into execution, or the Porro operation should be performed. If the child and placenta be removal, the rent in the uterus may be stitched with deep and superficial sutures; and the womb contracted by manipulation. Repeated doses of ergot would keep



the organ in a state of clonic contraction. The rubber rope might be employed to strangulate the cervical segment of the uterus while the rent in the organ underwent suturing. A drainage tube might be sent into the uterine cavity after the elastic cord had been removed. A glass drainage tube should be placed in the abdominal incision when the borders of the wound are closed with sutures. And the traumatism should be managed as in ordinary laparotomy: iodoform should be used, in the dressing; and strips of rubber adhesive plaster should cross the wound to hold the edges in firm apposition. If the patient survive the shock and the hemorrhagic loss, she may sustain the inflammatory onset, and recover. The danger is from the delay to secure surgical skill till the woman is moribund. The average practitioner has not the courage to open the abdomen at once, and proceed to execute what the emergency demands; while delay is more than dangerous, it is fatal.

Rupture of the uterus commonly occurs during normal labor; and the event can neither be foreseen nor averted. While a parturient woman is getting on fairly well with her uterine throes, she suddenly turns pale, as if in a fit of syncope, looks here and there as if to summon help, becomes almost pulseless, gasps for breath, the womb ceases to act, a cutting pain through the abdomen is felt, and alarm is apparent in every feature; and the fear spreads to physician and nurses. A calamity is impending, but for the minute its nature is not understood. If the rent involve the os and cervix, as it does in half the cases reported, the obstetrician may learn the nature of the accident by making a digital examination, the finger finding the laceration at once; but should the rent occur in the body of the organ or in the fundus, the nature and extent of the lesion may continue unsolved till death end efforts at restoration.

In attempts at version or turning when an arm presents, it is conjectured that the presence of the accoucheur's hand provokes extraordinary uterine throes, endangering rupture, yet in a majority of instances laceration has occurred when no exciting cause could be named. It may be reasonably presumed that an impediment to labor, of any kind, might call forth unwonted effort, and indirectly become a cause of rupture.

It is quite certain that the uterine walls may be unduly thin and friable. I have tested the strength of the structure in autopsical examinations following death at delivery, and have been surprised at the ease with which the uterine parietes may be torn in cases where no appreciable decomposition had



occurred. The wonder is that a parturient womb does not tear oftener than facts bear witness.

The improper use of ergot has been charged with blame in rupture of the uterus; and so has the employment of forceps; yet the use of the hand in podalic version has a larger *per cent.* of uterine laceration to be accounted for. Bungling manipulations on the part of inexperienced and uneducated midwives have been attended with disastrous lacerations and sequential death.

While it may be interesting to discuss causes, it is more important to know what to do in the event the accident occur in the practice of the reader. The terrific pang or anguish, the pallid face, the shock, the aspect of the patient in all respects, the anxious eye, the clammy sweat, the ghastly features so suddenly depicted, startle the most reserved of obstetricians, and call for immediate action. The first impulse is to send a hand into the cavity of the womb for the feet of the child, if they can be reached; but if the uterus be empty, and a chasm in its parietes be discovered, with a feeling bordering on despair he feels for the child in the abdominal cavity, the hand and arm bathed in a profusion of vascular waste. If the feet of the foetus be reached, it is by no means certain that the escaped child can be returned to the uterine cavity. In fact it is never certain that the woman will not die in the effort. It is easier and safer, then, to open the abdomen, rescue the child, throw an elastic cord about the cervical segment, and empty the organ of placenta and coagula. This is practically executing the modified Cæsarian section. Instead of next suturing the rent after the method of Sænger, the Porro operation may be performed.

In rupture of the uterus the outside or peritoneal covering may not be lacerated, and the blood will pour out of the cervix and vagina. It may then be prudent to attempt delivery by the aid of forceps, yet the effort is attended with danger. If the delivery be not easy and speedy, it is safer to execute abdominotomy and the Cæsarian or Porro operation. The technique of these procedures having been fully detailed previously, it is not necessary to repeat again and again what has once been clearly described.

Writers upon obstetric science speak of deformed pelves as a cause of rupture of the uterus, the osseous distortion obstructing delivery, and provoking dangerous labor throes. A warped pelvis might unduly press upon the womb where a projection existed, and indirectly contribute to the laceration; yet as



causes of uterine ruptures I think they have been overrated. It has not been my lot to be called to deliver many women who had deformed pelves. I anticipated trouble with a hunchback, who married a man that had an eye to her large fortune, but the accouchement turned out much easier than I had anticipated. I am not in accord with the theories of those who affirm that the Cæsarian section ought to be contemplated if the antero-posterior diameter be reduced to two and a half inches, or when a twist in the pelvic circle be thus and so. If a rubber ring be distorted by a pinch of the thumb and finger, the lateral diameters are increased as much as the others are lessened by the deflection. There is as much area in the pelvic straits if the circles be somewhat distorted. To say in advance that a rachitic woman could not be delivered of a living child, is to assume more than facts warrant. However, since the Cæsarian operation has been simplified till a novice can successfully execute it, a contemplation of its execution need not stagger the equipoise of any practitioner of medicine who possesses a moiety of surgical ability.

From pressure upon the acetabula, in a case of malacastron, the pelvic area may be greatly encroached upon. In the case of Isabel Redman, in obstetric literature, the conjugate and oblique diameters were both involved, so that there was a shrinkage of pelvic area. What was lost in one diameter was not gained in another.

If there be pelvic exostosis, a lump of osseous matter encroaching largely upon the inner capacity of the pelvis, a Porro operation or Cæsarian section may be deliberately entered upon when labor pains begin.

In a consideration of professional duty when a woman with a deformed pelvis is pregnant, it should be estimated that a child born at seven or eight months of utero-gestation has a fair and reasonable chance to live. In a case where a first child had been eviscerated to save the life of the mother, I caused the delivery of the second at eight months, and the child has now grown to womanhood. I believe it might have been viable if delivered at seven months.

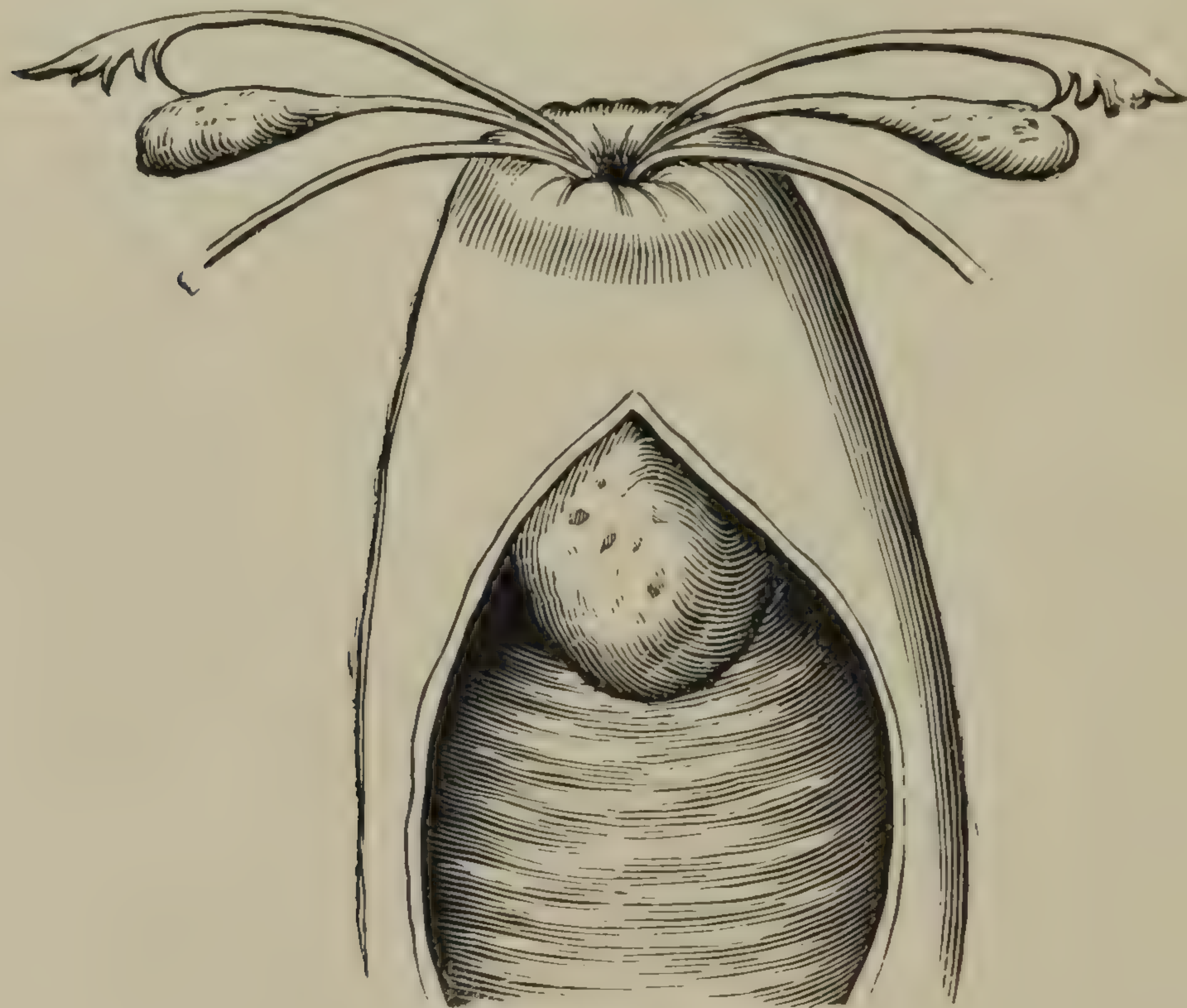
My plea is against the practice of hasty and unconsidered evisceration of the child—against “heroic” craniotomy.



### INVERSION OF THE UTERUS.

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A somewhat rare accident consists in a descent of the fundus of the womb into the cavity of the organ, until the uterus is turned "inside out." The lesion occurs usually during parturition, or while the placenta is undergoing dislodgement. Traction upon the umbilical cord might start the infolding process, and even continue it until complete inversion resulted. This misfortune happens oftenest at the hands of careless and incompetent midwives, yet it may fall to the lot of a skillful obstetrician. It has occurred spontaneously when no "assistance" was rendered.



Inversion of the Uterus.

If the inversion be complete, the fundus descends through the canal of the cervix, and the os presents upwards. The Fallopian tubes and adjacent ovarian and uterine ligaments, are dragged downwards by the descending fundus, and fill the peritoneal cavity of the inverted organ. The accompanying diagram represents the malposition of the several displaced parts. The bulb projecting into the vagina presents a roughened exterior which is the endometrium, or lining membrane of the uterus. Sometimes the inverted fundus escapes through the vulva, and appears like a hernial mass. And if the protruded



viscus be not replaced at once, or within a few days, it can not easily be returned, but must be endured or amputated.

The inversion may be *partial*, or to a limited extent, the fundus being slightly indented, or it may be forced half way down the uterine cavity. In such a state of inversion the lesion may not be recognized. The os and cervix remain in their normal position, hence only the abdominal hand in a bimanual examination would detect the cup-like indentation at the upper extremity of the uterus. A partial inversion may be produced by precipitate delivery, the woman being in a sitting attitude or in an upright position, and the child with uncut cord dragging upon an undelivered placenta. In fact, such a state of things has resulted in complete inversion, the placenta adhering for a time to the endometric surface. Under such circumstances, the detachment is attended with profuse hemorrhage. The emergency is one that tests the ability of the boldest practitioner. The bleeding mass is to be seized with the right hand, compressed, and forced upwards; the left hand is employed in pressure upon the hypogastrium to prevent the uterus from rising too high in the abdomen, and to assist in the "reducing" process. The patient is ghastly in appearance, and otherwise seems *in extremis*, though successful reduction is usually followed by speedy reaction.

*Inversio uteri* not attendant upon parturition is the result of polypus, the tumor rendering the walls of the womb thin and flabby; and the weight of the morbid mass drags the fundus into a state of inversion. The polypus usually hangs in the vulvar aperture; a finger following the pedicle comes to the inverted fundus, which feels like a globular tumor; and as no os nor cervix can be found, the complication is very perplexing. In a case where I was called in consultation, the attending physician stated that he was completely baffled in efforts to make a diagnosis. Here again the bimanual method of examination contributed largely to a solution of the mystery. The uterine cervix could be felt through the abdominal walls, as the vaginal digit pushed upon the inverted fundus. Besides, the fornix—sulcus between the womb and vaginal wall—was too deep to be sounded with the finger.

The patient in the case just alluded to suffered from hemorrhages, dragging sensations, offensive discharges, vesical irritation, and constipation. She was thin of flesh, pale of countenance, and anæmic. Three years previously a polypus had been removed from the uterus by a twisting force imparted with for-



ceps. Perhaps the effort initiated the inverting process. The menses were profuse, and attended with pain and lassitude. The endometrium could not be manipulated without provoking hemorrhage. The polypus had a slender pedicle, and terminated in a knob as large as a Spanish chestnut.

Before attempts at re-inversion were made, the polypus was excised with scissors, the blades cutting close to the uterine connection. The operation was easily executed, and little hemorrhage followed. It was decided to allow a week to pass before an effort be made to re-invert the womb. This interval permitted the wound to heal, and gave an opportunity to impress the uterine tissues with stramonium. The doctor smeared the endometrium every day with freshly made datura ointment.

At the time appointed the patient was placed on a table, in the lithotomy position, and anæsthetized. I then placed the excavated end of a wooden stethoscope against the inverted fundus, and pressed steadily upon it with my right hand, while my left indented the hypogastrium, and bore heavily upon the uterine cervix. Forces were thus exerted for ten or fifteen minutes, or until the hands were tired. The manipulation was thus conducted for two hours, with an appreciable degree of success. The next day another similar trial was made, and with pronounced success. At a third effort on the following day, the fundus was carried to its normal position, and the cervix came back to its accustomed place. The os would readily admit the forefinger, and through the dilated aperture a blunt implement was carried, and upward force employed to re-invert the fundus. The cavity of the womb was three inches in depth at the completion of the operation. Afterwards by letter I learned that the woman regained her former state of health, and suffered no inconvenience from previous disease and manipulations.

Twenty years ago it was advocated, as a judicious surgical measure, that in the event of chronic inversion of the uterus, the organ should be excised or amputated. However, the operation was attended with such a high rate of mortality that its execution has been condemned by the more conservative of operators. In 1847, Valentin, a French Surgeon, "reduced an inverted uterus after the lapse of upwards of a year from the date of its occurrence. The reduction was performed by the aid of the two hands, the left placed over the hypogastric region, the right in the vagina, the tumor being grasped by the finger and thumb of the right hand. These manipulations were performed while the patient was under the influence of ether; and after



application of continuous pressure in this way for about ten minutes the reduction was accomplished, and the patient completely cured. Dr. Tyler Smith, in 1856, successfully reduced an inverted uterus of twelve years' duration after several days' treatment, the uterus being pressed and moulded by the fingers for about ten minutes night and morning. After repeated trials, the cervix uteri, which was firmly contracted around the neck of the projecting tumor, began to yield a little, and the tumor could be slightly sunk in the os. After each operation a large india-rubber air-pessary was placed in the vagina, and inflated to as great an extent as the patient could bear. The air-pessary was worn, with few exceptions, day and night. After a week of these proceedings the patient felt a good deal of pain through the whole of one night; and in the morning, when an examination was made, it was discovered that complete re-inversion had taken place. A small air-pessary was afterward worn for a few days, and the recumbent position maintained. Subsequently the patient became pregnant."

Dr. Barnes, at the suggestion of Marion Sims, made two incisions in the uterine cervix, to give mobility to the parts, and then easily reduced an inverted uterus.

It has been suggested to insert one forefinger in the rectum and the other in the bladder, and then with the thumbs on the fundus, while the fingers rest on the cervix, to force re-inversion. This ingenious method has actually been put in successful practice; but a finger grasped by the urethra must soon tire, or become inefficient, and there is danger of doing serious harm to the sphincter vesicæ.

The reduction of an inverted uterus may, just after parturition, be effected by carrying the entire hand into the vagina, and manipulating the pulpy mass with it. The other hand is employed to indent the hypogastrium, and to exert counter force. An implement with a cup at one end and a spiral spring at the other, has been utilized in the reducing process. This is not superior as a repositor to the ordinary wooden stethoscope.

Dr. T. G. Thomas executed laparotomy, and effected re-inversion, in a case that had resisted several attempts at reduction by manipulation.

Dr. Alfred Meadows had *inversio uteri* recur three times after he had, so far as he could judge, fully effected re-inversion. The recurrence took place in a few minutes after each reduction. The last time he employed a vaginal tampon, and pressure upon



the abdomen, to obviate the tendency of the organ to turn inside out.

Thomas, in his *Diseases of Women*, reports the following case: "A patient who, for several years, had suffered from menorrhagia, applied to Prof. C. A. Budd, of N. Y., for treatment. Upon examination, he discovered what he supposed to be a fibrous polypus, equal in size to a hen's egg, attached to the uterine cavity [?] near the entrance of the right Fallopian tube. Carefully differentiating this, as he supposed, from partial inversion, he applied the ecraseur and removed it, with a part of the Fallopian tube and round ligament. The case, which was one of partial inversion, was not susceptible of diagnosis. The menorrhagia attending it was entirely relieved by the operation, the patient rapidly recovering.

The bulbous end of a pear-shaped polypus, which is large enough to distend the vagina, has been taken for the fundus of an inverted uterus, hence the necessity of exercising great care in diagnosing and differentiating uterine diseases. If the polypus grow from the *os tincæ*, its base may seem continuous with the cervix. However, a sound can be made to enter the cavity of the uterus, though a polypus or tumor do obstruct the passage to a perplexing extent.



## SECTION XI.

ABDOMINOTOMY.

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Elsewhere I have objected to laparotomy as a proper term to express abdominal incisions made in the median line, as in ordinary gastrotomy, ovariectomy, and hysterectomy. Abdominotomy signifies cutting into the cavity of the belly, to remove a bullet, a tumor, or a diseased viscus. If the operative procedure be to ablate the stomach, spleen, kidney, or other organ, the viscus removed might contribute to the phraseology, as splenotomy, nephrectomy, and the like. Cutting into the bladder is denominated cystotomy, whether the incision be above or below the pubic arch. Incising the abdomen in the flank to reach the colon might be designated laparotomy, yet as well could be named colotomy.

Oöphorectomy has been employed to express the surgical removal of normal ovaries, as in the castration or unsexing of the female,—an operation practised chiefly in India, during girlhood, to modify the voice and general character of the person mutilated. To produce female eunuchs was an oriental custom; and one not entirely out of use in Asia at present. Xanthus, who wrote a century before the Christian era, speaks of female eunuchs in the royal palaces of Lydia.

The operation of Battey, which consists in the ablation or excision of the ovaries to relieve epilepsy and exasperating nervous disorders presumed to depend upon ovarian hyperæsthesia, has been designated oöphorectomy to distinguish it from ordinary ovariectomy.

The removal of the ovaries of domestic animals, to make them fatten quickly, is common in Europe. It is said that a Hungarian sow-gelder successfully removed the ovaries of his unchaste daughter to cure her of libidinous practices.

The Battey operation is to cure menorrhagia, dysmenorrhœa, *et al.*, and has often proven a substantial relief.

Lawson Tait has commended oöphorectomy to arrest the hemorrhage and the growth of uterine myomata (fibroids). Battey had in view artificial menopause; Tait the arrest of



hemorrhage and uterine hypertrophy. Battey contemplated the cure of "neuroses;" Tait the production of uterine atrophy.

Abdominotomy is oftenest performed to remove cystic ovaries. It may often be executed to ascertain what constitutes an enlargement in the peritoneal cavity. The cut may be tentative to learn what is the cause of an abdominal trouble. Such an operation has been called "exploratory" or experimental. As such it has been condemned; but those who have had the most experience with abdominal explorations are the strongest advocates of tentative incisions. The incisions are not dangerous, and they put an end to doubt and unsatisfactory theories. If a cancer exist in the belly, and its removal be impracticable, there is a satisfaction in knowing the true state of things. To open the abdomen when pregnancy exists is surgically compromising, yet when it is considered that the wound may be closed without disturbing the gestation or greatly hazarding the woman's life, the mishap is not unpardonable. While I have never committed such a blunder, I am not ready to condemn those who have. It is not uncommon to remove a cystic ovary, it being known that the patient was pregnant.

I have been called to execute abdominotomy when the tumefaction was ascertained in advance to be tympanites. It may demand the use of anæsthesia to dispel a delusion founded on a suspected pregnancy, a state of uterine hydrometra, hydramnios, *etc.* In the examination of abdominal enlargements it is hard to be right and easy to be wrong. However, the use of the uterine sound, and the effects of anæsthesia, will settle many disputed points. I was called to laparotomize a woman who had a large abdomen, but found that fæces and flatus constituted the distending media. Once I was summoned to a neighboring State to operate upon a woman alleged to be in danger from ectopic pregnancy. The foetal heart had been heard(?) by several physicians, yet there was nothing in the uterus! The patient's abdomen was as large as if she were six months' pregnant, but was more elastic. Under the anæsthetic effects of chloroform the belly flattened as if suddenly collapsed. The age of the woman (48) convinced me that a pregnancy was improbable.

#### ABDOMINAL EXPLORATION AND MENSURATION.

Physical examinations of the abdomen, including the pelvis, should receive special attention at the hands of a beginner; and if he be discriminating he can send an exploring needle



through the abdominal walls into any viscus in the peritoneal cavity,—even into the gall-cyst. I speak now of the normal display of viscera, and do not presume an impossibility—the localization of an organ which is displaced. The witnessing of laparotomies and autopsies serves to correct topographical points. A student looks sharper into a living abdominal cavity than he does into a dead one. I have seen a somewhat inexperienced abdominotomist hunt several minutes to find an ovary presumed to be diseased. The organ had become depressed into the Douglas *cul-de-sac*. While a large opening in the abdominal parietes is to be avoided if possible, it is better to make room for rapid explorations than it is to manipulate unsatisfactorily through a small opening. I have learned the advantages of having plenty of room. While I have grasped an ovary with the fore- and middle-finger, and drawn it out of the belly through an aperture which just admitted the digits, I have also failed in such attempts, enlarging the cut to make space for free manipulation. But I am anticipating. The belly is to be externally examined, and the patient's general condition noted. The *facies ovariana*, or peculiarly wrinkled features of the face, may be observed at a glance, half developing a diagnosis; or the anæmia of carcinoma may be observed at once. The attitude of the body in bed may disclose something worth observing. Drawn up limbs indicate abdominal tenderness. A lean condition may be the effect of prolonged suffering; and a plump and fresh appearance is in the patient's favor.

A protuberent abdomen is indicative of distention, or pregnancy, ascites, peritonitis, tumefaction of some sort or kind. Possibly a hypertrophied stomach, liver, spleen, kidney, colon, or other viscus, may be the cause of abdominal distention. Aneurism is to be considered, as well as enlargement of the mesenteric glands. Feculent accumulations have misled the unwary.

In front the abdominal parietes are thinnest, protruding most, while in the flanks the belly is thicker and less yielding. Springy and elastic walls are to be distinguished from rigid and spasmodic states. Ascites is usually accompanied with a peculiar bloodless state of the skin, and with an even filling of the peritoneal cavity. A history of the distention aids in the diagnosis. An exploratory puncture of the peritoneal cavity would decide a doubtful case. The fluid of ascites is serous while that of an ovarian sac is albuminous, as may be tested by boiling in a test tube.



The circumference of the abdomen at the umbilicus, if it be forty inches, more or less, is indicative of great size or much distention, but does not demonstrate what the character of the filling may be. Fat women often measure more than forty inches in girth.

The general appearance of the bared abdomen is to be scrutinized. Striæ in the flanks show that the woman has carried a child to term; but if the stripes be developed into ridges, œdema is present; and if the veins—epigastric—be dilated and distended, there is venous obstruction in the abdomen—possibly in the liver. Sometimes the epigastric veins are seen to blend with the mammary, the venous blood reaching the thoracic region and the heart in a round-about way. Such a complication is not necessarily opposed to abdominotomy, but is to be estimated as somewhat unfavorable. The removal of an ovarian or other abdominal tumor, may help the blood to resume circulation in old channels.

An ovarian cyst develops in one iliac region or the other, and gradually grows upwards and towards the median line, till it fills the cavity of the belly quite evenly. While developing it can be pushed from side to side, the mass slowly gliding beneath the abdominal walls, but if it be multilocular, and quite large, there is not much movement to be detected, yet lumps here and there may be out-lined and more or less elastic spots determined by careful and discriminating manipulation.

A uterine fibroid, when of considerable size, feels like a pregnant uterus. The tumor is *hypogastric*—is in the median line, reaches from the pubes to the umbilicus.

In the exploration of abdominal tumors, it must not be forgotten that several tumors may exist at the same time. There may be a uterine fibroid and an ovarian cyst developing in a given patient. An hypertrophied uterus, whether physiological or pathological, rises above the pelvic brim as it develops, but a small uterine myoma may be crowded downward by a rapidly developing cyst of an ovary. The accompanying cut represents a case that came under my observation.

The uterine cervix was forced as low as the vulvar aperture. The cavity of the womb was four inches deep. The abdomen was distended as much as that of a woman at term; and seemingly with an hypertrophied uterus. But a careful manipulation of the abdomen discovered a line of separation between an ovarian cyst, and the fundus of an hypertrophied womb.

It is not always easy to find where an enlarged liver and a



pelvic tumor blend or press against each other. In a word the most experienced diagnostician fails to differentiate as he would like to in numerous cases. An abdominal cavity filled with tumors is a *terra incognita*.



While an abdominal exploration is going on the patient is to be turned from side to side, and to assume attitudes which promise help in the way of diagnostication. The vagina is to be explored with the finger, and the uterus palpated with the idea of ascertaining the size, consistence and pitch of the organ. Sometimes a point of value is gained by a digital examination of the rectum. And while the exploration is going on a hand on the abdomen feels impulses imparted by the finger in vagina and rectum. In other words, the exploration is bimanual. As already stated, the uterine sound is a valuable diagnostic instrument, and is to be employed when pregnancy is out of the question.

In the discovery of pent-up fluids and the discrimination of solids, a resort to percussion is not to be neglected. While the fingers are placed on a region, and struck with the fingers of the other hand, the sound developed may be quite distinctive of what exists at some depth. The procedure is like that practised upon the chest by the pulmonist. The belly is usually a little tympanitic; and a distended ovarian cyst may sound, on percussion, as if fluid be present. To thump a ute-



rine fibroid is to develop a thud resembling a tap upon the thigh. I admit that percussion is not satisfactory, even when a scientific pleximeter is employed. In a case of meteorism or phantom-tumor, the resonance developed by percussion is diagnostic to a decided extent.

Auscultation in the examination of abdominal tumors is not to be neglected, especially if a developing fœtus, in or out of the womb, is a matter of importance in a diagnosis. A stethoscope may be employed, or the diagnostician may place his ear to the abdomen, a single layer of cloth intervening. The sounds of the fœtal heart may thus be heard, yet only a cultivated ear, with acute hearing, can be sure of the distinctive beats. I confess that I can not place confidence in my own sense of audition; and I have known others to fail so often and ridiculously, that we may question the value of the procedure. The bruit of an aneurism might be heard, though so many sounds, more or less rhythmical, are developed by the intestines, that we can not be certain what all of them mean. Tait thinks we may swallow air, like crib-biting horses, and develop a rattling in the intestines which may be deceptive.

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### OÖPHORECTOMY.

It seems to me that I can not pursue a simpler course of instruction in an attempt to teach the technique of abdominotomy, than by entering upon the subject in a set of "first steps," which may be expanded understandingly into a ready comprehension of the most complex ovariectomy which tries the patience and skill of the most expert operator.

Oöphorectomy is only practised in what is generally known as Battey's operation. This consists in opening the abdomen in the median line for the purpose of removing an ovary which, through congestion and irritability, upsets a woman's equilibrium, producing epilepsy, catalepsy, and paroxysmal disorders which land the victim in a mad-house.

Battey performed oöphorectomy to establish a menopause yet with conditions as a sequence: he expected to get rid of painful menstruations and certain annoying neuroses. He did not contemplate salpingotomy, or excision of the Fallopian tubes, which later experiences found to be as necessary as to remove the ovaries.



It is seemingly simple to grasp an ovary, ligature its envelope, and then excise with scissors the strangulated mass. Both arteries and veins would be constricted, and the traumatism could not be extended. But experience taught that the infundibulum, *morbus diaboli*, or fimbriated extremity of the salpinx was, when inflamed, about as troublesome as a diseased ovary. And it was also discovered by experimental practice, that the Fallopian tube became disordered after the ablation of an accompanying ovary. Besides, the cicatrix following excision of an ovary was liable to obstruct the salpingian canal, favoring infarction.

At present both tube and ovary are excised at the same time, though no attempt is made to remove the duct at a point near the uterus. An inch or two of the outer extremity will do. The mass excised may be included in a single ligature; yet the tying must be snug; and the excision must leave a stump not too short, or so near the ligature as to endanger slipping after shrinkage, which may be considerable.

The operation having been determined upon to cure mania, epilepsy, or other serious disorder, the patient is placed on a table and anæsthetized. A female nurse of experience should be in close attendance; and a physician is needed as an assistant, and another to administer the chloroform. While the anæsthetic is given, the surgeon sees that the abdomen is clean and in a condition to be rendered traumatic. An eczematous state of the skin would be objectionable. A few instruments and implements are needed; and more would be troublesome or in the way of the operator. A sponge or two in a pan of water should be at hand. The incision in the skin of the belly should be in the median line of the abdomen, and about three inches in length. The cut may be about half way between the umbilicus and the pubes, and shorten a little as it becomes deeper. There is no occasion for haste, therefore the wound may be dried with a sponge as the blood flows or oozes. Toothed forceps raise a fold of linea alba while it is nicked with a knife. A grooved director enters the aperture, and guides the knife or scissors while the tendinous structure is slit upward and downward. Then, again, the wound is dried with a sponge, and time granted for oozing to cease. Next the peritoneal lining of the abdominal parietes is seized, nicked, and slit, as was the layer of tendon against which the serous membrane rests. Now folds of intestines are seen, and obstruct a view of the uterus and ovaries. Even omentum may be seen; yet all are to be pushed gently



upward while the fingers feel for the "uterine appendages" on one side or the other. The manipulator is to remember that the ovaries and Fallopian tubes are behind the broad ligaments—almost in the hollow of the sacrum, or in proximity with the rectum. To have this anatomical point in mind will save trouble and damaging manipulation. If a view of the organs *in situ* is to be obtained a clean linen cloth is made to hold the intestines upward and away from the ovaries. The fore- and middle-fingers astride an ovary may be able to bring the organ into view in the abdominal wound. There the ovary and salpingian infundibulum may be inspected, passed upon, and then returned if sound, or ligated and excised if diseased. A clamp-forceps may be utilized to grasp, compress, and hold the ovary, and such part of the tube as is to be ligated and excised. An assistant is needed to complete the work—either to hold or to tie and excise. A single strand or thong of strong silk is passed around the uplifted mass, and then tied as in the constriction of a pedicle. The strangled mass is excised with scissors, the stump inspected, iodoformed, and after superfluous ends of ligatures are snipped, is dropped into the pelvic cavity. The other ovary and tube are then to be inspected, and treated in the same way if warranted by the disease present. The borders of the abdominal wound are then to be iodoformed, closed with sutures, and the seam supported with rubber strips of adhesive plaster. Over these a compress of cotton-wool is laid, after being iodoformed, and a compress of folded cloth placed over all. The last compress is to be held in place with tapes or ties going round the body. This completes the operation, and represents how abdominotomy in general is to be performed. Hands and instruments are to be scrupulously clean, yet no antiseptic except iodoform is to be employed.

The after treatment is, or may be, more difficult, and require more patience and skill than the cutting part of the operation. If nausea intervene, hot enemata of water are to be injected into the rectum. In efforts to evacuate the enematous water gas is permitted to escape, and some feculence, and a downward action is invited. Cold table tea, a swallow of ginger ale now and then, and sour lemonade, are all the drinks to be taken to allay thirst. Camphor water, and a weak infusion of cloves, may be employed to allay retching and vomiting. Rest in one position is good for nausea, while active movements favor gastro-intestinal disturbance. Nutrients may be tried on the second day succeeding an operation. In a bad or threatening case



the sutures in the abdominal walls may be snipped, and a glass drainage tube inserted to evacuate tainted serum from the peritoneal cavity.

The foregoing represents the simplest form of abdominotomy—Battey's operation; yet complications are to be considered, especially as they happen often. An inflamed infundibulum and ovary may be adhered to an intestinal fold, so that excision is not practicable till detachment be effected. Sometimes the fingers may discover the abnormal connection, and overcome it. However, it is often necessary to drag the fortuitous adhesions into view, that a separation may be safely made, and bleeding points secured by ligatures or forci-pressure. It is not judicious to trust to the vital processes to arrest bleeding inside the peritoneum; but it is wise to secure all bleeding points with small ligatures or snap-forceps.

If there be abscess of the ovary or pyo-salpinx, the purulent fluid should be kept from peritoneal surfaces. Aspiration of the pus will do, yet it is better to excise suppurating pockets and cysts. The main ligature drops below the morbid mass, and is made to strangulate whatever is to be removed, whether ovary or tube, or both. Inasmuch as a tube is useless without its associate ovary, and salpingian difficulties are possible after ovarian excision, the course of the surgeon is plain unless the danger be increased by the double ablation. The Tait operation, then, has more to commend it than the procedure of Battey. It is more than suspected that the excision of both ovary and tube was not deliberately determined upon as an operation superior to that of Battey's, but a morbid condition of the tube suggested its removal.

Salpingotomy may be performed, and the ovaries, if sound, may be let alone. It is not best to remove more than is actually necessary. Different operators have individual notions in regard to the technique of an abdominotomy. With some it is common to cover the abdomen with a rubber cloth which has a central and longitudinal slit in it through which the operation is performed. The argument is that slop—ascitic serum—is carried off quickly and without wetting the integument of the abdomen. A rubber shield or trough is also used to collect fluids and direct them into a waste bucket. These pieces of apparatus are convenient in a private or public hospital, yet they increase the *impedimenta* of a surgeon who operates in the country. It is well, too, to have at hand a fountain syringe or apparatus to throw a constant stream of warm water into a



soiled abdominal cavity, yet a coffee-pot of warm water can be utilized as a substitute in rural districts.

While opening the abdomen it is common to make the incision exactly in the median line, going between the recti muscles, but a slight variation need not be embarrassing. A grooved director or dull spud may be employed to press the red muscular structure to the right or left, till the yellowish white fibrous septum is seen. After this is raised, nicked, and incised, some fat which rests upon the outer surface of the peritoneum is seen. As before stated, the serous lining of the abdominal walls is not to be opened until all bleeding thus far provoked has been arrested. The present procedure is to raise two folds of peritoneum with snap-forceps, and with scissors cut between the implements. In this I see no gain over raising a fold of the exposed peritoneum and making a small puncture in it, to admit a grooved director or the blunt point of a scissor blade. The argument is that with two pairs of forceps there is less danger of wounding a fold of intestine that may be near or protruding. I have never observed any danger of cutting an intestine.

After the ovary and its immediate envelopes are lifted from the pelvic cavity, and the tube has been dragged into view, a blunt needle with a double ligature may be thrust through the broad ligament below the ovary, and the two strands tied to the right and left, the outer strangulating the ovarian vessels, and the inner the vessels near the womb. Both ligatures are to be drawn very tight, and excision of the strangulated masses is to be made with scissors. The double stump is a mass of puckered structures; and is cut far enough from the ligatures not to endanger escape of the strangulated masses. The Staffordshire knot may be employed, though it possesses no advantages over the method which is less complex.

While closing the abdominal incision, silk threads armed at each end with glovers' needles are to be employed, yet a broad, thin sponge covers the intestines while the sutures are going in place. The sponge absorbs any blood the needle punctures may set free. At length the sponge is to be removed and the last two ligatures tightened. It is well, as earlier suggested, to dust traumatic surfaces with iodoform. If the stump be in good condition when dropped into the pelvic cavity, it need not be inspected at the last moment to see that it does not bleed.

The Tait operation just described, which may be called salpingo-oöphorectomy, is so simple and easily executed, that it



may be performed in a few minutes, yet in the event suppuration and sequential cicatrization have blended the ovaries and tubes with the rectum and the boundaries of the Douglas *cul de sac*, the complexities and perplexities are most confounding. The incision in the abdominal walls must be extended upward and downward as if a huge ovariectomy or hysterectomy were to be performed. Assistants are to hold apart the borders of the abdominal incision, so that the surgeon can see clearly what the pathological state may be, and the course under the circumstances it may be best to pursue. If the intestines persist in tumbling in the way they may be turned out of the belly, and wrapped in a linen cloth, often sprinkled with hot water to keep it warm. It will be seen, then, that salpingo-oöphorectomy may be one of the most difficult operations in surgery. But, to gradually reach a comprehension of the subject I have thought best to mention first the simple operative measures, and contemplate intricacies afterward. Should a novice encounter a difficult case without due consideration of what might fall in his way, he would bewhelmed at the start, and think of retreat. In abdominotomy it is generally best to go on, unless cancer be a complicity. The most satisfactory results have followed hours of fatigued labor. The timid operator gains courage as he advances.

In a complicated case a brisk hemorrhage from a hidden source is annoying, if not actually alarming. If the bleeding vessel could be seen it might be ligated or compressed with forceps, yet if deep in the pelvic cavity the bleeding point can not be recognized and controlled. In a desperate case the spot may be packed with sponges and waited upon. As a *der-nier ressort*—the oozing surface may be compressed with the blades of snap-forceps, and the handles left outside the abdomen. In a day or so the compressing instruments may be unlocked and removed with safety. A glass drainage tube is to take the place of the compressors for two or three days.

In the separation of a sessile infundibulum from the surface of an intestine great care is to be exercised that the bowel's parietes be not torn. In detaching the intestine short snips of scissors may aid the fingers in making the separation. In the event of tearing the bowel a few stitches or sutures with a fine animal ligature should close the rent.

When searching for the ovaries of a myoma or fibroid, the tumor may be rotated somewhat to expose the "appendages" of



either side. It is best to inspect or examine the ovaries and tubes on both sides before excision be attempted. It is not uncommon to find one ovary and its tube near the median line in front; and the other sequentially on the posterior aspect of the hypertrophied uterus. In such a case the one presenting may be excised; and then the other revolved or rotated into view.

In not exceedingly rare instances an operation may begin with oöphorectomy in view, and end in hysterectomy. But with improvements in the latter operation, the novice need not be dismayed,—he may throw a rubber rope around the hypertrophied womb, transfix it with knitting needles, and amputate the organ near the cervical segment. There is no fear that the remaining part will grow or otherwise give trouble. Hysterectomy in its bearings upon the sexual conditions of the woman is like a Porro operation; yet a myomatous womb never becomes pregnant. Oöphorectomy on both sides renders a woman as sterile as hysterectomy; and a woman's social state is not much modified by either operation.

The effect of Tait's operation—salpingo-oöphorectomy—comes largely from cutting off blood supplies from the uterus. However, the removal of the ovaries and infundibula is attended with neurotomy and the removal of the centres of neurotic action.

In a case I assisted Dr. L. E. Russell to operate upon, the woman had a large uterine myoma, and two symmetrical lumps on each side of the hypertrophied organ. These became enlarged and sensitive during menstruation, so that it seemed advisable to excise the enlarged and diseased organs. But upon opening the abdomen the “lumps” were found to be outgrowths from the myomatous womb. These fortuitous developments were ligated with the Staffordshire tie and excised. The ovaries, which were sound, were left undisturbed. The patient made a speedy recovery; and has menstruated without pain or undue hemorrhagic loss. The sources of neurotic disturbance were cut off; and the effect has been to reduce the size of the myoma. The operation established atrophy, and accomplished all that was contemplated, yet the “appendages”—the ovaries and the tubes—remain. The menopause is not likely to occur until the usual climacteric.



## OVARIAN AND SALPINGIAN CYSTOMATA.

Although ovaritis and salpingitis, have been discussed already, it was more in a therapeutic than a surgical sense. At present it shall be my aim to speak of morbid states of the ovaries and oviducts as they develop into cystic states—into cystomata which are to be managed surgically. Ordinary ovaritis and salpingitis are managed by the family physician in the majority of instances, there being no thought of consulting the surgeon or operative gynecologist. The menstruating woman is prone to complain of pain or uneasiness in the iliac regions during the menstrual *nisus*, and for a day or two afterward. There is more or less irritability of the ovaries and tubes during the hyperæsthesia of the menstrual state. Occasionally there will be so high a degree of sensitiveness developed that the graver conditions of disease are forced upon professional notice. If an enlarged ovary or salpingian body can be felt through the abdominal parietes or in the recto-vaginal *cul-de-sac*, removal of such bodies would be contemplated. If a pouched Fallopian tube could be outlined and diagnosticated, aspiration of the cyst might be executed to advantage. But such an operative procedure is attended with danger; and its wholesome effects are only temporary. The succulated segment refills again and again, and seldom disappears radically. A cyst of the ovary as large as the fist might be aspirated, yet the relief would be temporary. Besides, there are few practitioners bold enough to send exploring needles into organs as deeply located as the uterine “appendages.” The average physician is not apt to meddle with surgical appliances as long as he can hold the confidence of a patient by zealously administering drugs. He will prescribe opiates during the painful stages of menstruation, and ply leontine, black haw, prickly ash, and other reputable “female remedies,” between times. Inasmuch as the “specialist” makes inroads upon the patronage of the family physician, the former is to be shunned and ignored as long as possible. This is simply an expression of human nature. But if the ordinary practitioner do not buy books, instruments, and means of instructing himself upon the eye, the ear, the throat, and the ovaries, he will have cases which will fall into the hands of specialists. This may naturally be expected,—it comes from competition which grows keener and keener every year. The young practitioner who starts off with a womb-sound and a vaginal speculum need not lay claims to



gynæcological reputation. He may have dissected a female cadaver, but that may be safely doubted. He has not gazed upon the abdominal viscera of a living woman; he could not find the ovaries if he were to thrust a hand through an aperture of the belly, and hunt in the pelvis for the organs named. I do not say this reproachfully, or in a censorious spirit, but to arouse in the student's mind a disposition or ambition to learn to be what he would aim to be. He must purchase gynæcological works, and study them unceasingly, and buy instruments he may some time use. He may say that he has not money to warrant the expenditure, and speak wisely at the same time. But he can make a beginning; he can secure needles and sutures, and select a variety of sponges. These are first steps, yet have to be taken in narrow paths before one can take strides along the world's highway.

It does not require a high order of skill to open and close an aperture in the abdominal parietes, but it demands time to acquire a reputation which secures the opportunity to do the cutting and suturing. To do the work well a familiarity with needles and sutures comes in. It will not do to ligate an ovarian pedicle with a common silk thread or cord. The ligature has to be drawn so tightly that it would break under the strain. The ovariologist carries a variety of ligatures, the strongest of which a giant can not break. I mention these minor things to impress the inexperienced student that he must begin at the bottom of a ladder well planted, and climb from rung to rung with steadily ascending steps. If there be a shorter or easier way to get up in the world, I have failed to find it.

It is no easy task to master gynæcological technicalities;—the ordinary lexicon does not embrace all, so rapidly have they accumulated, yet much reading will enable the learner to find out their meanings.

Before entering upon a detailed description of ovariectomy it may be profitable to discuss the pathology of ovarian cysts. The general impression is that cystic disease of the ovaries is much more common than it was fifty years ago; and so it may be, but a knowledge of a specific morbid activity brings it into prominence and seemingly makes it abound. It has been so with Bright's disease, uterine hypertrophy, paralysis, and other common causes of fatality. Possibly modern manners of living may have something to do with the multiplication of well known diseases.



Abortions, sterility hinging upon sexual abuse or lack of use, gonorrhœal ovaritis, and an artificial life within doors, may reasonably have multiplied the victims of ovarian cystoma. However, in citing causes it must be borne in mind that infants and senile women have developed cystic disease of the ovaries. This goes to show that the development of ovarian cystomata does not depend wholly upon menstruation or ovulation.

In the development and discharge of an ovum some accident may happen to the process. The crypt in which the egg is evolved is usually contracted into an eschar or cicatrix: but its borders may unite by the "first intention," surgically speaking, and convert the crypt into a cyst, with a secretory membrane for a lining, and go on developing till the sac become as large as a pea, a filbert, an orange, or a big watermelon. The sac is thin at first, but grows thicker and stronger as its size increases. The contained fluid is sero-albuminous, serum predominating at the start, and albumen in advanced stages of cystic evolution.

The lining of an ovarian crypt is studded with follicular epithelium which contributes to the growth of the incipient cyst. At a later period of evolution minute blood vessels develop *pari passu* with the development of the cystoma.

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### SALPINGIAN COMPLICATIONS.

In the diagnostication and differentiation of ovarian and tubal diseases it should not be forgotten that a Fallopian tube may become occluded at both ends, as well as at intermediate points; and that each segment may become distended with muco-purulent fluid,—or with blood or serum,—constituting a series of tumors coiled upon each other, and forming a mass so large and knobby that its external characteristics can be felt in the Douglas *cul de sac*, and through the walls of the belly. Hydro- and pyo-salpinx may make a tumor whose sac will hold pints, and even quarts of fluid. Peaslee reports a salpingian tumor which when tapped, discharged eighteen pounds of fluid. It is highly proper, then, that in the serious consideration of pelvic tumors, salpingian cysts should be considered, and differentiated if possible. The ovary and the tube rest so near together, that the enlargement of one may be taken for hypertrophy of the other.

However, a mistake in diagnosis need not result in harm. After the abdomen is open, and the salpingian infarction be



discovered, the tumor may be excised, whether it be ovarian or Fallopian. As before stated, the abdominotomist is to be prepared for emergencies,—if he be mistaken in his diagnosis before operation, he should be ready to correct it afterwards, and not be dismayed either. If there be a salpingian cyst instead of an ovarian cystoma, let the operation of removal go on. It is not well to aspirate salpingian cysts. It is better to excise them. Salpingotomy is not difficult to execute, though complications—adhesions—are often troublesome. Detachments have to be made with care. A succession of inflammatory paroxysms result in an agglutination of viscera. In the worst blendings there is no hope of a cure. Masses of exudates weld structures together.

The objective signs of pyo-salpinx is paroxysmal pain in the region of the ovaries, the swelling being fixed, fluctuating, and sausage-shaped. The aggravation of pain at menstrual epochs is not distinctive of salpingian trouble, yet in a measure indicative of the trouble. It is useless to contemplate removal of salpingian cysts or tubal tumors without at the same time ablating the adjacent ovary, for the organ is useless without a functional duct. Generally the two organs—the ovary and oviduct—are matted together with the exudates of pelvic peritonitis, so that entire removal of all the diseased parts is impossible.

Hydro-salpinx is the commonest of Fallopian distensions, and hæmato-salpinx the rarest. Pyo-salpinx is the result of acute inflammation—salpingitis. The blood of a hæmato-salpinx may be menstrual. Although menstrual blood is generally accredited to the endometrium, it is now known that the linings of the Fallopian tubes furnish a moiety if not more.

Hydro-salpinx may, from over-distension of the obstructed tube, break through its barriers, and discharge the pent-up contents into the womb or into the peritoneal cavity. The sudden relief from acute pain, and a simultaneous discharge of watery fluid from the uterus, can hardly be interpreted in any other way.

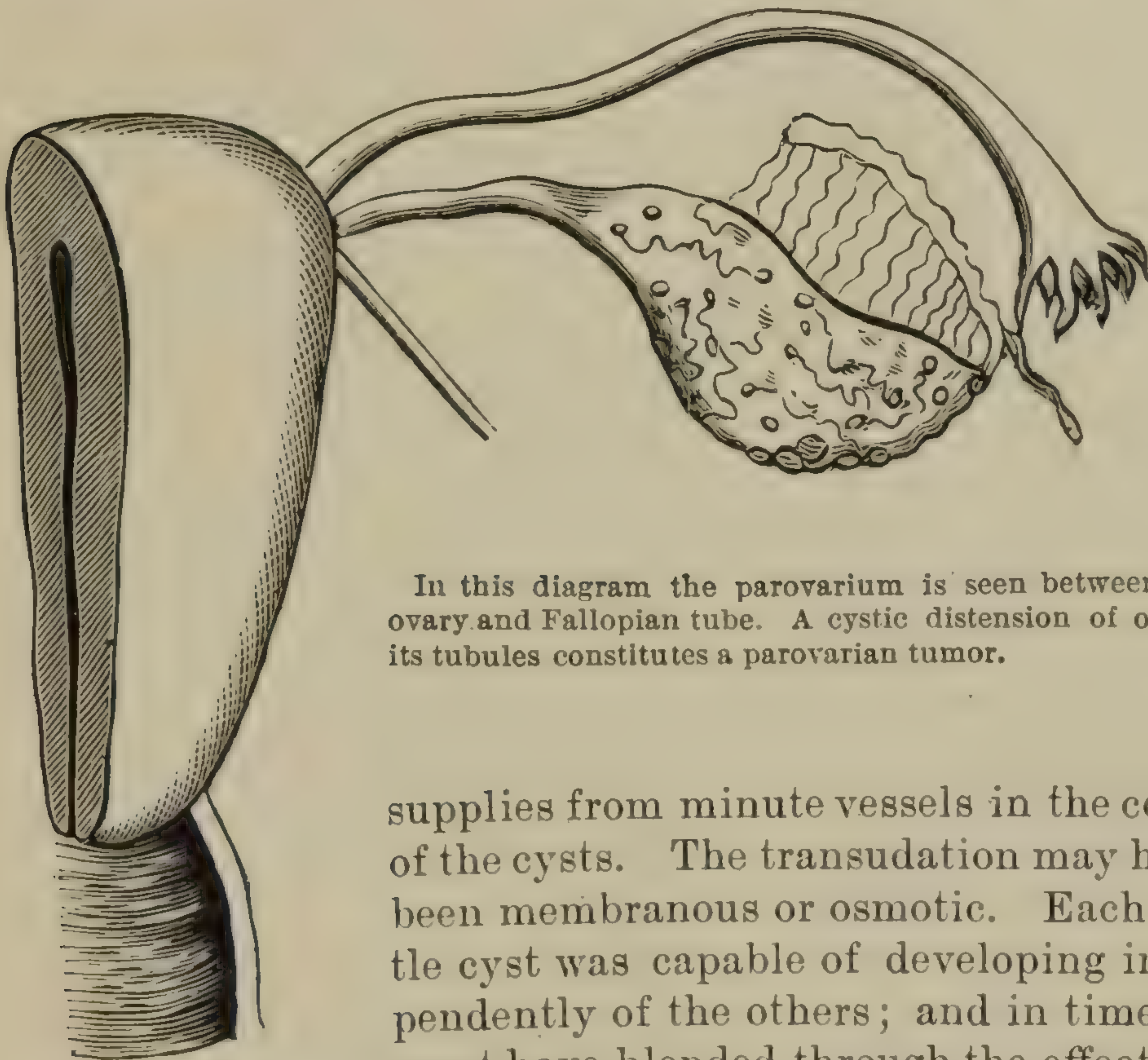
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### OVARIAN CYSTS.

Recently I executed hysterectomy, and discovered one ovary sound, and the other cystomatous. The cysts were nine in number, about as large as small peas. All were of ovarian origin, and each had sprung from ovarian stroma—from the sub-



stance of the gland—and all were covered with a peritoneal envelope. When each was punctured with a needle a drop or two of water escaped. The parietes of each cyst had three layers of covering—the peritoneal layer outwardly, a fibrous coat beneath, and a delicate lining, which, under a magnifying-glass, revealed epithelial follicles. These were secretory, and drew



In this diagram the parovarium is seen between the ovary and Fallopian tube. A cystic distension of one of its tubules constitutes a parovarian tumor.

supplies from minute vessels in the coats of the cysts. The transudation may have been membranous or osmotic. Each little cyst was capable of developing independently of the others; and in time all must have blended through the effects of encroachment of parietal pressure. In a similar sample excised with an enlarged oviduct, I observed a central cyst an inch in diameter, with five or six other (yet much smaller) cysts surrounding the central cystoma. The largest seemed to be absorbing the smaller cysts, yet the cyst walls of each were independent and separate. In reality there was a multilocular tumor which might have remained thus to the end of life. However, all multilocular tumors of the ovary do not develop in this way, for the number of independent cysts in some cystomata is legion, amounting to thousands if not millions. In other words a cystomatous disease is capable of generating or multiplying its kind. Hydatids exist in some ovarian cystomata, minute cystic bodies springing from the walls of parent cysts.

A parovarian cyst is unilocular, has thin walls, and the envelope embraces a limpid fluid. The cyst is simply an enlarge-



ment of one of the tubes of Gartner or Rosenmeuller. The contents of a parovarium is not so complex and toxic as that developed in a true cystoma. In the removal of a par-ovarium the operator may find the adjacent ovary and Fallopian tube quite sound, unless the pedicle of the tumor have encroached upon those organs. Parovarian removal is not so dangerous as the excision of ovarian cystomata in general. The pedicle is less fleshy, less vascular. The stump is small, and readily seals its traumatic surface with lymph. In the removal of such a tumor there is little shock, and not a high grade of inflammation. Only a small *per cent.* of ovarian cystomata belong to the parovarian variety. They are morphologically not ovarian. In the autopsy of a girl of seventeen who died suddenly from the bursting of a tumor of the pelvis, I noticed that the torn sac was parovarian, quite thin and friable, and did not disturb either the ovary or oviduct on that side. I had set a day for an ovariectomy, but an accident obviated a surgical operation. The proposed abdominotomy had many features in its favor if it had been executed before the bursting of the follicle-like sac. At first an autopsy was refused, but when I told the mother that it would put an end to a scandalous rumor of pregnancy, the parent consented to the proposed *post mortem*.

I may mention that mere infants have developed ovarian cysts of comparatively large size; and it is not uncommon to find a cystomatous state of the ovaries in old women. Ovariectomy has been successfully performed on a woman eighty years of age, the tumor developing after the patient was seventy.

The best authority is that true ovarian tumors, springing from crypts of the organ, or from Graafian follicles, are never unilocular; but from the nature of their development must be multilocular, the evolving follicles being multiple.

Lawson Tait, in his "*Diseases of the Ovaries*," illustrates his notion of cyst-forming as follows: "The formation of a compound cystic tumor in the ovary, whether it be of the multiple variety, or of the less complete kind, of which I am about to speak, may be very well illustrated by blowing soap-bubbles in a basin. If the fluid be not viscid enough to enable the bells to retain their form, a normal condition of the ovary is represented, its cells bursting and disappearing. Let us suppose that the cell-growth is constantly going on, and that some alteration occurs in the state of matters which prevents the cell-walls from bursting; the fluid in the basin is so viscid the bells do not break, and bubble after bubble is formed, some



larger, some smaller, until a large multicystic tumor is the result. The actual appearances of the cystic ovary may be very well imitated in the basin of soap-bubbles. A large cyst can be made by little ones crowding into it, looking like its offspring, and the walls between two or three may be broken down, making one larger multilocular—the remains of the intervening walls not being left in the instance of the soap-bubbles. In the ovary we have the continued production of cells, representing the continuous blowing of the bubbles; and we have only to discover what it is that is analogous in the ovary to the increased viscosity in the solution of soap; what it is that keeps the cysts in their entirety, perverting a physiological into a pathological process.”

The view of Tait is unique, but does afford a striking illustration of what actually takes place in a developing ovarian cyst. If it be granted that there be compartments to a “blasted ovum,” and that each subdivision becomes a centre of reproductive or proligerous power, the parietes of newly forming cysts do not blend with the main cystoma, and lose their individual characteristics; but, as a general thing, all go on developing, though some get crowded out in the pathological race.

The epithelial follicles which largely constitute the lining of a cyst, are endowed with secretory power, and furnish the watery contents of the sac. If the elaborated serum be examined microscopically, granules of condensed material are seen floating in the fluid.

The opinion has been advanced by histologists that granular matter in the contents of ovarian cysts is endowed with reproductive power, so that the ovariologist should be careful not to spill any of this fluid in the peritoneal cavity, lest it prove the cause of hydatid or cystic disease. It is quite satisfactorily established that the character of pathological activity in ovarian cystomata is degenerative, and not a wide remove from cancer. In fact, ovariologists are beginning to be alarmed at the frequency their recovered patients exhibit visceral malignancy. After a year or two of excellent health following excision of a cystic ovary, the patient sinks under a visceral disease, and dies of carcinoma. The first ovariectomy I ever executed was followed by a quick recovery; and the woman lived three or four years, enjoying unusually good health. But at length she began to complain of pain in the ovary of the other side of the body which was seemingly healthy when I operated. Although a second ovariectomy was contemplated it



was never executed on the ground of remoteness,—she had moved to a rural district, with surroundings unfit for a severe operation. At length she came to the city with the view of being operated upon again; but I declined to execute the design on the ground that my patient was too near dead with cancer of the pelvic viscera. After death of the victim I held an autopsy, and found extensively diffused carcinomatous disease which had its centre of activity in the ovary left at the time its cystic associate was removed. This led me to observe the reports of ovariologists; and I have noticed a striking *per cent.* which have died from cancer, a few years of good health following ovariectomy. Tait, after quoting opinions on this subject, says: Dr. Keith has drawn attention to this malignant tendency, saying, “that the rupture of certain cysts, on the escape of their fluid into the peritoneal cavity, is followed by, or at least is associated with, infection of the general peritoneal surface with papillary cancer, this accident having a uniformly fatal result. On the other hand, I have seen over and over again the same cells and the same expressions of immature growth in the peritoneum, without the presence of any ovarian tumor. This morbid expression was not so noticeable a few years ago, when ovariectomies were not as common as they now are, but at present it is common to encounter this form of malignant disease.”

The same writer goes on to say that this stands us in hand to keep cystomatous fluid out of the peritoneal cavity; and especially to operate early, before the malignancy has had an opportunity to become impressive in its evolving character. Besides, old cystic sacs are friable, and liable, therefore, to be lacerated in removal, especially if there be many adhesions as likely there will be in old cases. Tait thinks tapping hastens the development of incipient cancer of ovarian cysts; and endangers laceration of the sac when it is subsequently removed. By the early removal of ovarian cystomata we remove the source of systemic infection.

A fibroid ovary is a rare state of disease, yet it is possible. The ovarian stroma and connective tissue may develop into a hypertrophied mass which would fill the belly like a myomatous uterus; and such a giant growth would have to be treated like a uterine fibroid. Its pedicle would have to be ligated, and the fleshy lump excised. If there be no well developed pedicle, its vascular base should be transfixed with a needle



carrying a double ligature, and the lateral parts tied with force. The most of the tumor might then be amputated.

A solid tumor of the ovary could not spring from the crypt of a discharged ovum; nor from a Graafian follicle, "blasted ovum," but must spring from a fibrous base or dense connective tissue.

Apoplexy of the ovary, if there be such a thing, is attended with a hemorrhage which may constitute a pelvic hæmatoma, or the blood may become encysted, constituting a hæmatocele. I once found a mass of decomposed blood-clot within the mesh work of an over-distended ovary. It was chocolate colored and granular, yet was not within a well defined cyst.

In multilocular tumors of the ovary the cyst-walls may be as thin as tissue paper, with little thickening toward the pedicle; yet they are apt to be thicker—as dressed sheepskin—and even a quarter of an inch thick. The contents of multilocular cystomata vary from a fluid as limpid as water to a clotty mass as thick as stiff jelly. A common consistence is that of buttermilk, with coagula of lymph intermixed. One of a group of cysts may be filled with a thin, jelly-like mass. It is not safe to tap an ovarian cyst with a common sized trocar and canula,—coagula of lymph will occlude the tube.

It is generally easy to diagnosticate an ovarian cyst which is as large as a gallon jug, for it can be pressed from one side of the belly to the other; and the contents under percussion, and a wave impulse imparted with the hands, can be felt in undulations.

I have stated that a parovarian cyst is thin-walled and unilocular; but should admit that it may comprise two or three, or several cysts; and that the contents may be gelatinous, and even bloody. Vicarious cysts of the broad ligaments are apt to be unilocular, and to resemble parovarian cysts in other respects. If there be dropsy of several parovarian tubules, the several cysts may blend, forming one large cyst, or they may develop as separate cysts, till they resemble a mass of developing ova in the ovary of a hen.

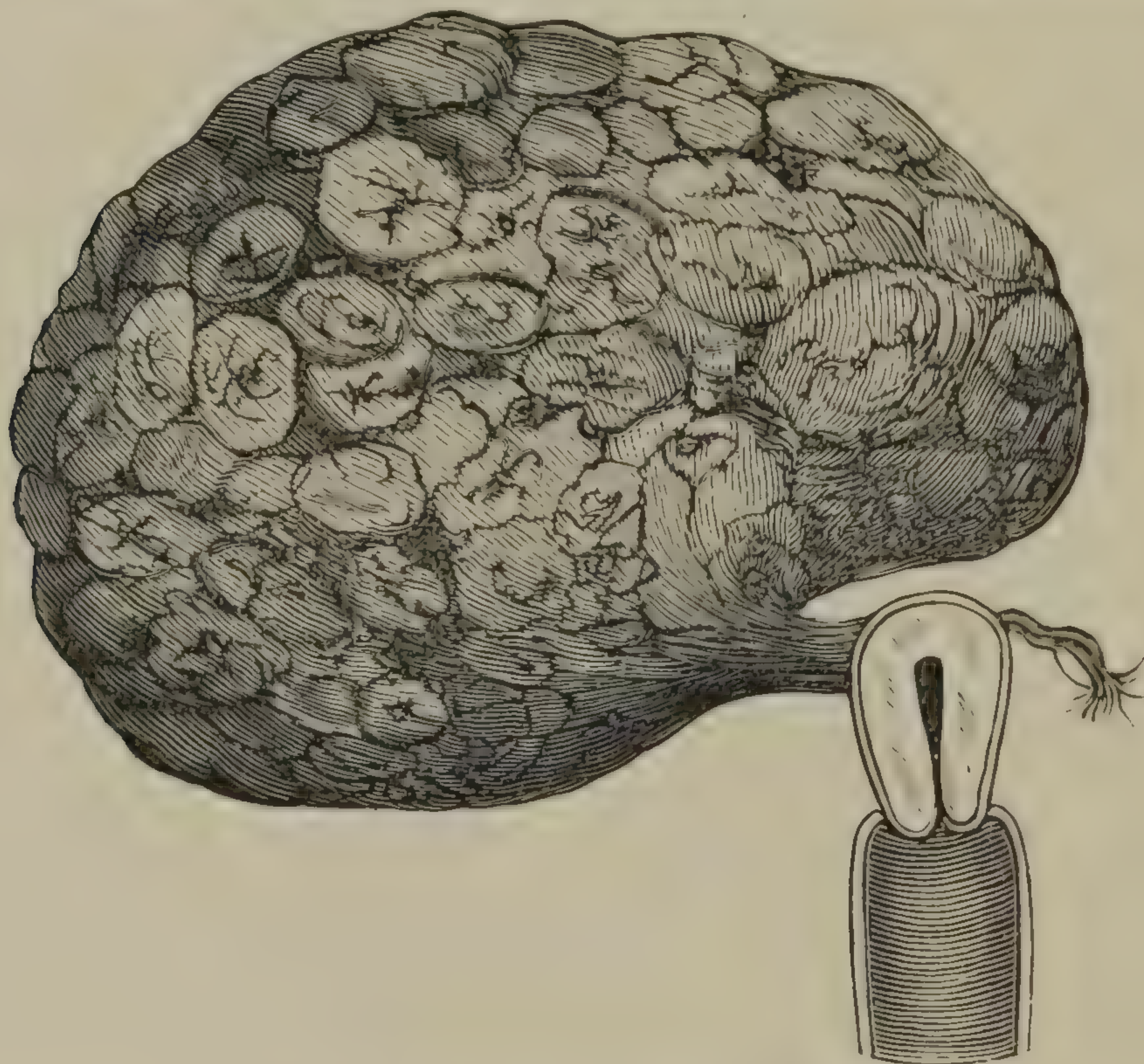
In the removal of disturbing calculi from the urachus I found the old canal distended into a cyst which contained six ounces of limpid fluid. At a later period the singular cyst may have developed into what might be regarded as an ovarian cystoma.

The experienced in diagnostics are occasionally confronted with a distended abdomen which may be filled with ascitic



fluid or with a thin walled ovarian cyst. The differentiation between the two states should be easy, yet mistakes are liable to be made. Ascitic fluid flows freely into all parts of the peritoneal cavity, hence the flanks will be full and distended; and the trickling of slopping fluid can be developed by percussion or palpation. The exploring needle may bring forth a sample for chemical analysis, or other experiment. There is a large amount of albumen in the average ovarian cyst; and less in ascitic serum. Fluids from parovarian tumors, cysts of the broad ligaments and urachus, contain salines and no albumen.

I should mention that there is occasionally encountered a single or multiple cystoma which becomes as large as an orange or a bunch of grapes, and continues till the end of life without doing much harm—without calling for any kind of an operation. I have met with two or three such cases, and decided



Dermoid cyst of the ovary—multilocular.

to let them alone. One has continued in the right hypogastrium for twenty years, and is now no larger than a mock-orange. It has not perceptibly enlarged for years. Cysts of this kind may disorganize both ovaries, making the woman sterile, yet create no great amount of disturbance to the general health. Observers have found an ovum in each of these cysts; and from this circumstance it has been conjectured that the cysts were enlarged Graafian follicles or blasted ova.



The most interesting of all ovarian tumors are "dermoid" cysts, so called, from the fact that they contain bone, muscle, hair, brain, and other organic material of a character to favor the idea that the epithelial structure lining the cysts had power to develop distinct parts of foetal organs. If the dermoid material were developed in the ovarian cysts of married women it might be inferred that pregnancy certainly had something to do with the presence of foetal structures; but it is demonstrated beyond question that dermoid cysts may exist in infants and young girls. In fact they are almost peculiar to young women of fair complexion, and who were unquestionably virgins. To get at a rational explanation of these products we shall have to canvas the mysteries of parthenogenesis as taught by Hæckel and Huxley.

While the old theory of a *nisus formativus* has gone quite into oblivion, there is no specific obstacle to a belief in a particular formative force in gemmules connected with a vitalized—not fructified—ovum. The egg without fructification could not evolve a new being, but segments of it might develop a bit of skin, evolve hair, or dental membrane which evolved teeth, a periosteal membrane which elaborated bone, and so on till a variety of organic structures were produced. When it is considered in ectopic generation a fecundated ovum can be transplanted in a structure quite at variance from that in which it should be evolved, we may see why the epithelial lining of a morbid ovum might produce fortuitous structures in restricted quantities, as teeth, bone, and muscle. As histology is studied more and more, a better explanation may be given to the mysterious influences of biology.

While an ovarian tumor is developing on one side of the body, it disturbs the general health so little that menstruation continues with regularity; and the usual flesh is maintained. However, the time will come when, through mechanical interference of functions—through pressure of the tumor upon the viscera and blood-vessels of the abdomen—the patient becomes thin of flesh, anæmic, ghostly and cadaveric. When a certain degree of vital depression is reached, the menstrual function for the time is suspended,—the menopause is enforced by exhaustion.

According to statistical tables ovarian cystomata occur oftenest about the "change of life," hence the climacteric influence is presumed to swerve the pathological activity which develops cysts of the ovary. Possibly maturing ova do not have the



vital endowment needed to bring them to maturity. The lack of a certain something in the metabolic forces allows an ovum to degenerate into a cystoma. There is a wavering line between a physiological and a pathological career which is often influenced by a trivial circumstance. An ovum which is not fully matured and promptly discharged, may by undue retention on the borders of the crypt in which it was evolved, be transformed into a morbid centre of cystic growth—may become a minute ovarian cystoma, that in a year or two of time may attain a weight of one hundred pounds. While growing the tumor may not produce much pain, but be simply discommoding through size. However, a dermoid cyst is usually sensitive and subject to paroxysms of pain.

An ovarian cystoma developes below the pelvic brim, even as low as the *cul de sac* of Douglas, but is inclined to rise into the cavity of the abdomen as soon as there be not space for it at a lower range. It moves in the course of least resistance which is in an upward direction. In its ascending course it keeps appreciably to the right or left of the median line, though it approaches the middle of the belly as it reaches the height of the umbilicus.

I should warn the young yet ambitious ovariologist against the venture of opening the abdomen of a woman who has a tumor of ten years existence, especially if the veins in the inguinal regions be large, and the skin of the abdomen lifeless or non-elastic. In such cases I fear malignant degeneracy, troublesome adhesions, and adverse results. My friend, Dr. C. Markt, once called me to remove an ovarian tumor, he thinking the case a favorable one for an operation; but as soon as I beheld the venous display in the groins and in the integument of the abdomen, I said that the peritoneum contained a malignant mass. It was thought best under the circumstances to make an exploratory incision; and we found such a blended mass of cancerous intestines and vascular meshwork, with bleeding at every delicate touch, that the aperture in the belly was sutured, and the woman left to live as long as the disease would permit continued existence. And this is not the only case of the kind I have encountered,—they are common. I should mention that coupled with large veins in the right and left hypogastric regions, with œdematous surroundings, swelling of the vulva, and dropsy of the legs, there will be a dulness upon percussion of the abdomen, indicating that a dense mass of exudates fills the cavity. While great ovariologists have



fought successfully against such odds, they generally wish they had let them alone. The scene is a trying one for the operative gynaecologist,—he must leave a suffering woman to die without an attempt to offer relief, or enter upon a desperate chance of success. While I would make readers bold and not timid, I believe in a certain degree of conservative discretion which is distinctively surgical. A reputation for being a second “Jack the ripper” is not desirable.

In the diagnosis of a small pelvic tumor, great discrimination is to be exercised. The lump is to be found, manipulated, and passed upon by the exercise of the two hands,—by the “bimanual method,”—and with the patient well under an anæsthetic. While the manipulator need not inflict much pain, the patient resists his efforts and thwarts his purposes. A small ovarian tumor gets behind the uterus in efforts to discover its location, size, and fluctuating character. If the tumor be a cyst of the broad ligament it hangs higher, and to one side. If the patient be not fat, or the walls of the belly be thin, the fingers can indent the hypogastrium to an extent that the fundus and the cervix of the womb can be felt by the digits of the two hands; and a tumor of the womb’s size could be manipulated, its diameters measured, and its consistency determined.

In making a differentiating diagnosis of pelvic tumors, it is essential that the condition of the womb be first determined. Get its exteriors well outlined by manipulation; and not use the sound unless it be quite certain that the patient is not pregnant. An ovarian tumor may, when the size of the fist, get wedged between the uterus and the promontory of the sacrum, and prove immovable to manipulatory efforts; but in time it will escape from its temporary incarceration and become freely moving in the cavity of the abdomen.

A salpingian segment engorged to the size of a sausage, may be recognized by its shape,—it is not round, but elongated. These are points worth remembering while making a distinctive diagnosis of diseases of the pelvic viscera. A knobby growth of the uterus on the posterior aspect of the organ may appear to be salpingian, yet if the tumor move with the womb it is quite sure to be uterine.

Not infrequently ascitic fluid exists in conjunction with an ovarian cyst. The ovariologist is familiar with the bubbling outgush of dropsical fluid when he opens the peritoneal cavity in an ordinary operative procedure. But he would like to know in advance whether ascitic fluid be present or not. This



can be done with a reasonable degree of surety. On percussion there is a double wave to be recognized if two sets of fluids—ascitic and cystic—be present. If an open hand be placed upon the belly, and the other push a cystic tumor from side to side, the ascitic fluid, in flowing one way and the other, is distinctly felt. Pressure around the margin of an ovarian cyst brings the fingers into intimate relation with the tumor, and defines where the intestines rest against the morbid mass. This line of contact is well defined in the epigastrium. An experienced diagnostician can discriminate between the percussion notes of tumor and peritoneal dropsy—ascites. Turning the patient from side to side, and noting whether fluid gravitates to the lower flank, is worth something in a differentiation. An ovarian cyst does not permit its fluid contents to flow into the flanks. The unpractised observer is to be careful to inquire into the history of a case if he would know whether he have before him a case of common ascites or an ovarian cyst. The fact that many women are subjected to paracentesis abdominis who have no ascites but ovarian cysts, is a commentary on the diagnostic skill of the tappers. Before the days of legitimate ovariectomy, dropsy in women was more common than at present. Ovarian cystomata were regarded as dropsies and treated as such.

In the diagnostication of abdominal tumors it is well to utilize *ballottement* to discover the movement of a body suspended in fluid, as a foetus in the uterus. The French method consists in placing a finger on the uterine os, and imparting to the organ a quick impulse upward,—this is *ballottement*. If the foetus in the amnionic fluid be felt to move and strike the uterus, the condition of pregnancy is demonstrated. The same thing can be practised on an ovarian cystoma. If the fingers be placed on the abdomen lightly, and then they be made to indent the belly, the ascitic fluid inside, if there be any, is driven away; and if there be a tumor existing the fingers come promptly in contact with it, receiving an impression not to be mistaken.

In the event of “false pregnancy” or phantom tumor the hysterical arts of women may deceive the “very elect” unless the patient be put under an anæsthetic. The semblance of a tumor then disappears,—deception can no longer be successfully practised.

Hydromnios is a dropsical state of the foetal membranes, the uterus becoming enormously distended. This condition is oftenest associated with twin pregnancies. The accident oft-



enest occurring in connection with this singularly morbid state is tapping under the impression that abdominal dropsy exists. If the trocar strike the over-distended womb, a miscarriage and fatal issue would be likely to follow.

Hydrometra is a distended condition of the womb in which there is no pregnancy, but a collection of fluid in the uterine cavity, menstrual or otherwise, escape being cut off by occlusion. However, a distension of the intestines with gas, giving the abdomen a tumefied state, has been written upon as hydrometra. It is a term which might go out of use without an appreciable loss to uterine pathology. I have mentioned these morbid states before, but in another connection.

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### OVARIOTOMY.

Opening the abdomen for the excision of ovarian cysts is very properly denominated *ovariotomy*. The surgical procedure is that of common abdominotomy, yet with a specific purpose in view,—that of removing ovarian cystomata. The operative procedure is not different from that already described, but complexities need to be written upon,—explained and elucidated. By a singular combination of circumstances my earliest cases were easy ones, though I had previously assisted in the performance of perplexing operations. In one case my preceptor Dr. Walter Burnham, an ovariologist at a period when ovariotomy was unpopular, set out to remove an ovarian tumor; and in the end executed complete hysterectomy. As soon as the abdomen was opened, hypertrophy of the uterus—uterine overgrowth—became apparent. The operator was for the moment astounded, but quickly became inspired with the thought that the tumor, whatever it be, must be removed. The ovarian arteries were ligatured, and the broad ligaments gathered into segments and ligated. In this way the uterine cervix was approached. A strong ligature was thrown around the sloping or conical neck of the organ, and snugly drawn, but the cord slipped downward, and probably encircled little more than the vagina. The entire womb was with scissors then freed from its connections. Some bleeding was manifested, yet the use of forceps and ligatures soon arrested the rapid flow of blood. However, there was so much wasting that I never expected to see the blanched woman pull through alive. The trouble was with the uterine arteries which enter the cervix near the vagi-



nal connection, but neither of us knew anything about their course or size. The ovarian vessels had been secured, for they were in sight; but the uterine arteries bled fearfully. I did not at the time estimate the risks to ureters and bladder, but good fortune attended their escape from knife and ligature. Before the operation was completed the main ligature slipped off, leaving free drainage through the vagina—a saving accident in the operation. The hemorrhage was considerable, but there was no way to stop the flow from points too deep for inspection or intelligent manipulation. Compresses or tampons of cloth crowded into the depths of the vagina, even into the pelvic cavity, helped to arrest the flow of blood. In a day or so the compresses were removed, and no hemorrhage afterward appeared. In a few weeks the patient was well. Hernia of intestines into the vagina was feared, but no accident attended the recovery. The experiences of this operation led me to study abdominotomy long before Spencer Wells had established the legitimacy of ovariectomy.

“The father of ovariectomy” is everywhere admitted to be Dr. Ephraim McDowell, of Danville, Ky. The operation had been performed in Europe, but no well written account of it had been published. Dr. McDowell had been a student of medicine in Edinburgh, and there had listened to a discussion of the subject. At home he was fortunate in having negro women to experiment upon, as did Marion Sims in experimenting for the cure of vesico-vaginal fistula.

After Dr. McDowell had published an account of several successful removals of ovarian cysts, ovariectomy was executed by several surgeons in the United States, among whom were Burnham, Peaslee, Atlee, and others. In 1858, Dr. T. Spencer Wells of London, entered upon a systematized method of excising ovarian tumors; and through success in a great variety of cases he made the operation “legitimate.” Since Wells retired from the field as an experienced operator, Keith of Edinburgh, and Tait of Birmingham, have improved the technique of the operation, till the death-rate has been reduced almost to *nil*. No surgical innovation has met with such signal success as has attended ovariectomy. Ingenious schemes have been devised to lessen the dangers of the operation, till little seems wanting to perfect the process. The antiseptic method of Lister promised much at first as a scheme to advance the interest of traumatic surgery, and especially of abdominotomy, yet failed to fill hopeful expectations. The peritoneal cavity was too impressible to



endure the presence of dilute carbolic acid, and weak solutions of corrosive sublimate. Keith and Tait were the first to condemn Listerism in ovariectomy; and now the most experienced operators have little to do with the complex scheme. Cleanliness is the way to escape asepsis.

After it has been decided that an ovarian tumor exists, and that removal is both practicable and advisable, a convenient time is set for the execution of the operation. It should occur between menstrual periods, if the menopause have not taken place; and it is well to select a morning hour on account of an increasing light. In cold weather the temperature should be about 80 deg. and in summer about the same, yet without draughts of air. The patient should be in as good state of health as practicable. The bowels are to be moved the night before the day of the surgery. On the evening previous to the operation a full bath should be taken, including a cleansing of the vagina and vulva; and it is well to have the median line of the belly shaved or the hair snipped with scissors. The bed in which the patient is to rest after the operation should be a comfortable one—a mattress bed is best. The room should be free from carpets, mats, and upholstery. Closets must be cleared of old garments and other *fomites*; and the walls of the room should have been recently papered or white washed. Little furniture should be in the apartment.

The operating table may be extemporized of boards a few feet long, and resting on firm supports. The platform should not be too high, as the operator has to bend over the abdomen of his patient. The table may be covered with a folded quilt, an oil-cloth covering this, and then the spread of a sheet. The patient is to have a pillow, and covers that are not heavy. Blankets are best. There should be at hand a dozen or two of the very cleanest towels, besides a few napkins. There should be two pans of hot water in which to immerse sponges and instruments, one rather shallow for the latter purpose. On a range or over a fire in an adjoining room should be kettles of boiling water. A silk handkerchief or a good sized linen one is to be utilized as a medium for the administration of chloroform. Twelve soft sponges, scrupulously clean and previously prepared, are to be at hand. A reliable female nurse is to be present to wait on the patient, and to do whatever the surgeon suggests. Another female attendant should be within call. A reliable medical man is to administer the anæsthetic, and a surgical assistant waits upon the operator. There is room for



so many, and more would be in the way. In country houses the females seem to be inefficient through fear, and rarely can be induced to do their best. They are ready to invoke the smiles of Providence, but not prompt to do their very best. They fail to appreciate that Providence favors those who help themselves.

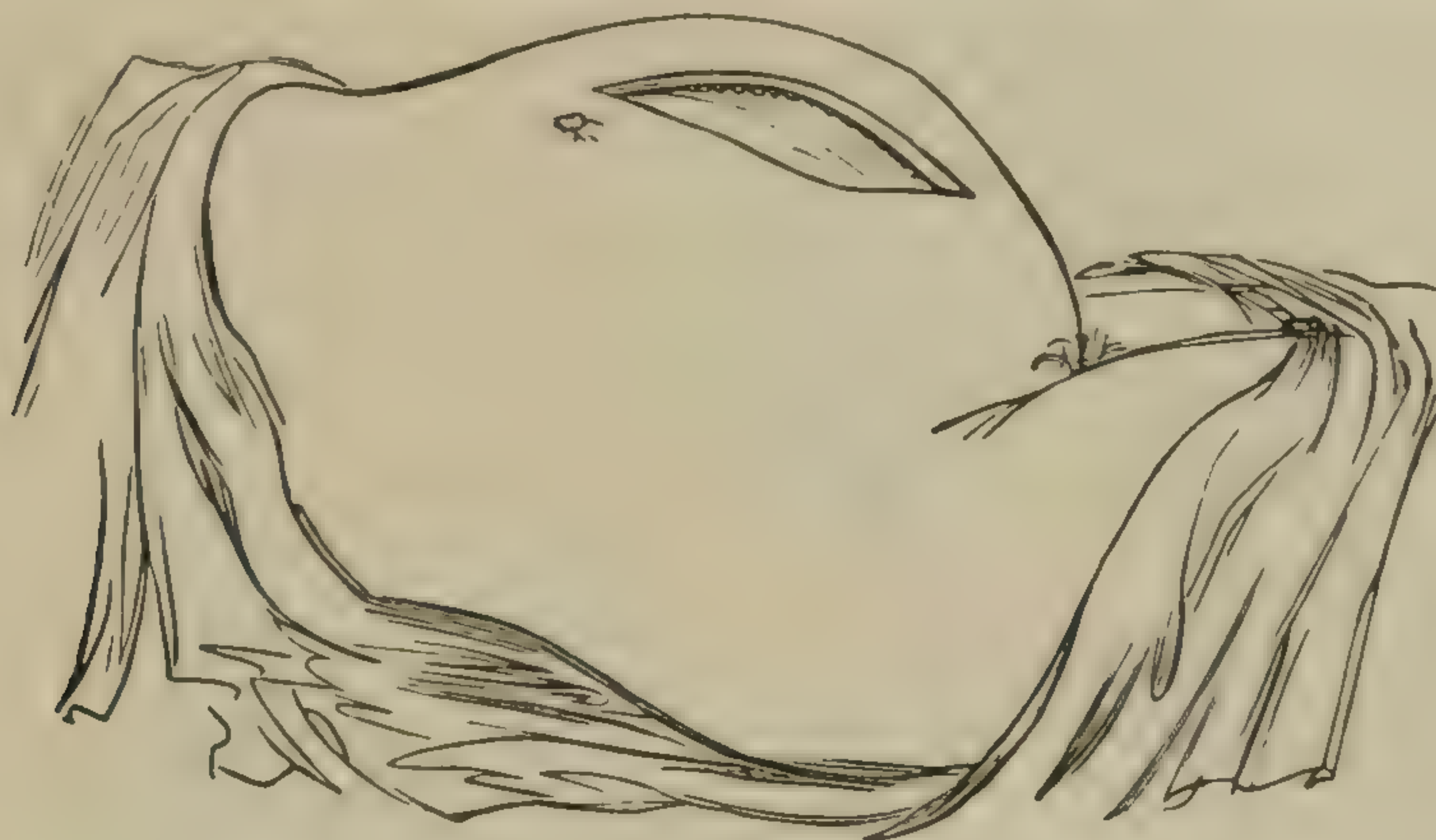
The surgeon places in a tray on a table such instruments as he is likely to need, and no more. Too many are embarrassing to an assistant who may not be familiar with the operator's ways.

But, to go back a little. The surgeon and his assistant should have clean hands—made so with brush and sponge in suds. They should have on clean shirts and aprons; and an attending woman with fan and towel in hand should see that perspiration do not drip from the operator's face into the open abdomen of the patient.

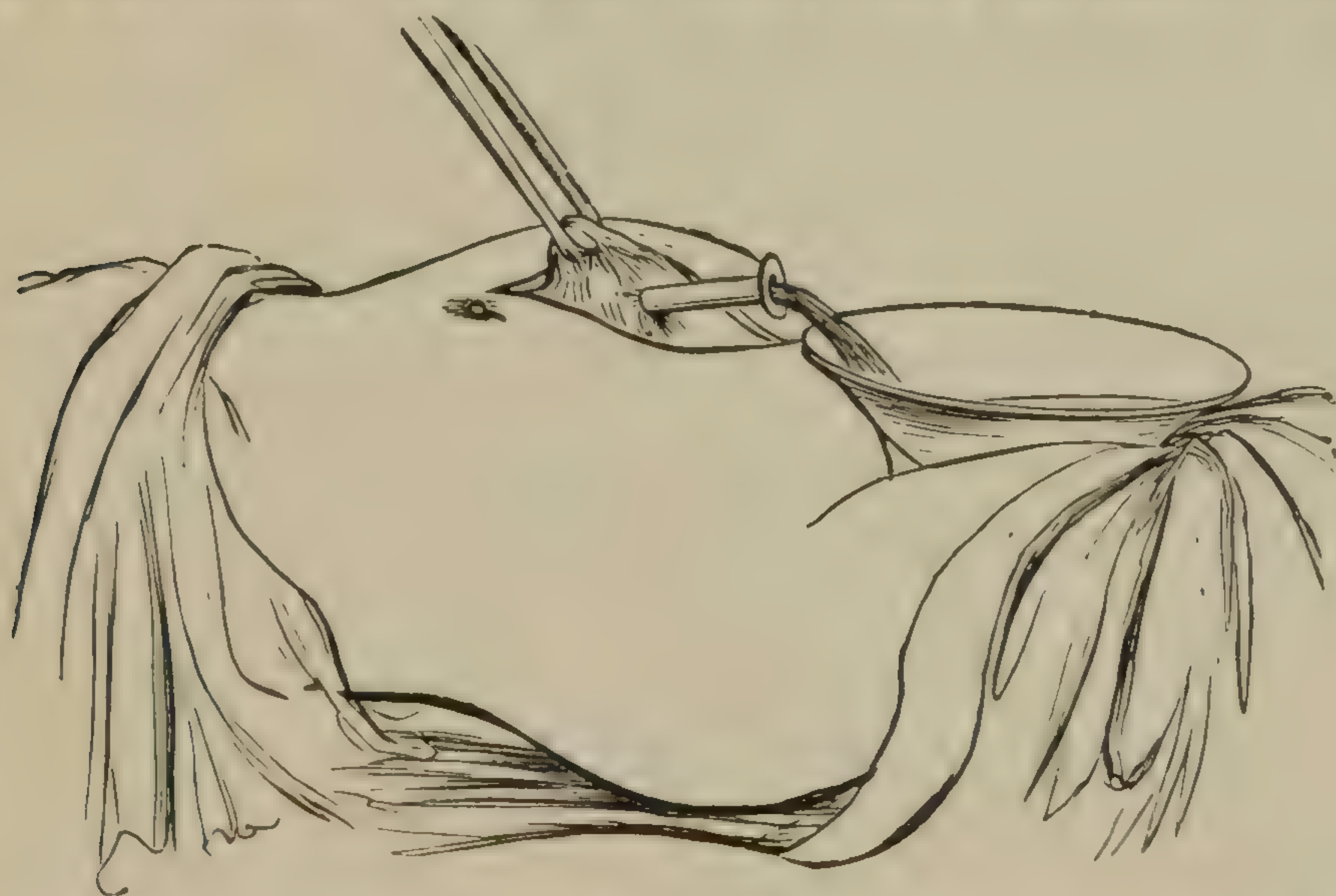
After all is ready, and the patient is under chloroform, the operator with scalpel in hand incises the skin of the abdomen from a point a little to the left of the umbilicus, and along the median line to a point near the pubes. The cutaneous bleeding is not startling, and is soon under control by the use of sponges. The fat is then divided to the tendinous linea alba, and bleeding controlled. A grooved director raises bands of fascia not divided, and pushes to right or left the edges of the recti muscles. A spud with a dull edge is a handy tool to press along the borders of the wound so far made; it helps to arrest the oozing of blood. The next thing is to raise the fibrous linea alba, and nick it with a knife till the finger or grooved director may enter the aperture. It is easy to extend this cut an inch or two up and down, yet small vessels may be divided, and the hemorrhage needs to be arrested. A layer of fat on the outside of the peritoneum is then seen, and may be nipped in the grasp of the forceps and raised. A fold is then excised to the extent of a quarter of an inch, when an outpouring of ascitic fluid takes place. The patient's body may be turned to the right or left, and the serum caught in a saucer or bowl. It may amount to quarts, especially if the operator's hands be pressed on the flanks where the liquid is apt to accumulate. The complication uses up a few minutes' time, but is not much annoying. The rubber cushion and flap is useful in such complexities; for it drains the fluid into a bucket or other receptacle. But if I know in advance, as I try to, that ascitic fluid is to be encountered, I have little trouble in disposing of it. The rubber shield does not afford all protection.



As soon as the ascitic fluid is disposed of the tumor commands attention. It is in sight, and is to be palpated with the finger to ascertain if the sac be thick or thin, and whether it be malignant or otherwise objectionable. The diagram represents the appearance of the tumor in the abdominal incision.



It is well to use a sound to explore the sulcus between the lining of the belly and the cyst, to learn whether there be adhesions between the peritoneal surfaces, and of what extent they may be if any exist. If there be no serious obstacles to the delivery of the tumor after it has been evacuated, the sac may be seized with vulsellum forceps which have a lock in the handles, and a large trocar is plunged through the parietes of the cyst-



toma. The diagram represents the contents of the cyst flowing into a bowl. This is graphic and practical; but the method is now improved upon. A rubber tube fits the outlet of the canula, and conducts the fluid to a slop-bucket beneath the operating table. While the fluid is flowing the operator or his assistant drags upon the collapsing sac so that it shall fill the aperture in the abdomen. The cyst-walls act as a tampon to keep folds of



intestines from protruding, and fluids from passing in or out. I made the pictures for my "*Surgery*" twenty years ago, yet so aptly that I can not improve upon them now.

After the sac is nearly empty, and quite collapsed, it is to be dragged from the cavity of the belly, and its pedicle examined. If there be no adhesions to intestinal folds or to the lining of the belly, or other structures, the pedicle may be constricted or strangulated with one or more strong ligatures, and an amputation made with shears a half inch outside the tie or line of strangulation. At this point it may be well to discuss the



manner of treating the pedicle. If it be long enough it may be brought into the lower angle of the wound, and there compressed between the two halves of an iron clamp gauged with screws. I shall refer to this implement again, but merely mention it now. It has gone out of use. Another method of treating the pedicle was to sew it in the abdominal aperture when the incision was closed with sutures, cutting the stump close to the skin of the belly. This is a good method of disposing of the pedicle when it is long enough not to be dragged upon. It has the advantage of not leaving any traumatism inside the peritoneal cavity. But, if there be traumatic surfaces from the severance of adhesions, the argument in favor of suturing the pedicle in the abdominal walls fails to hold good.

A very good way, if not the best, to treat an ovarian pedicle, is to ligate with a silken thong, sever it a short distance from the strangulated furrow, and drop into the belly, as was done by the "father of ovariectomy." It may be well to dust the puckered traumatism with iodoform, but that is not necessary. If the stump be no larger than a finger, a single thong is sufficient to strangulate it, but if it be twice as large as the finger, it should be transfixed with a needle armed with a double ligature; and



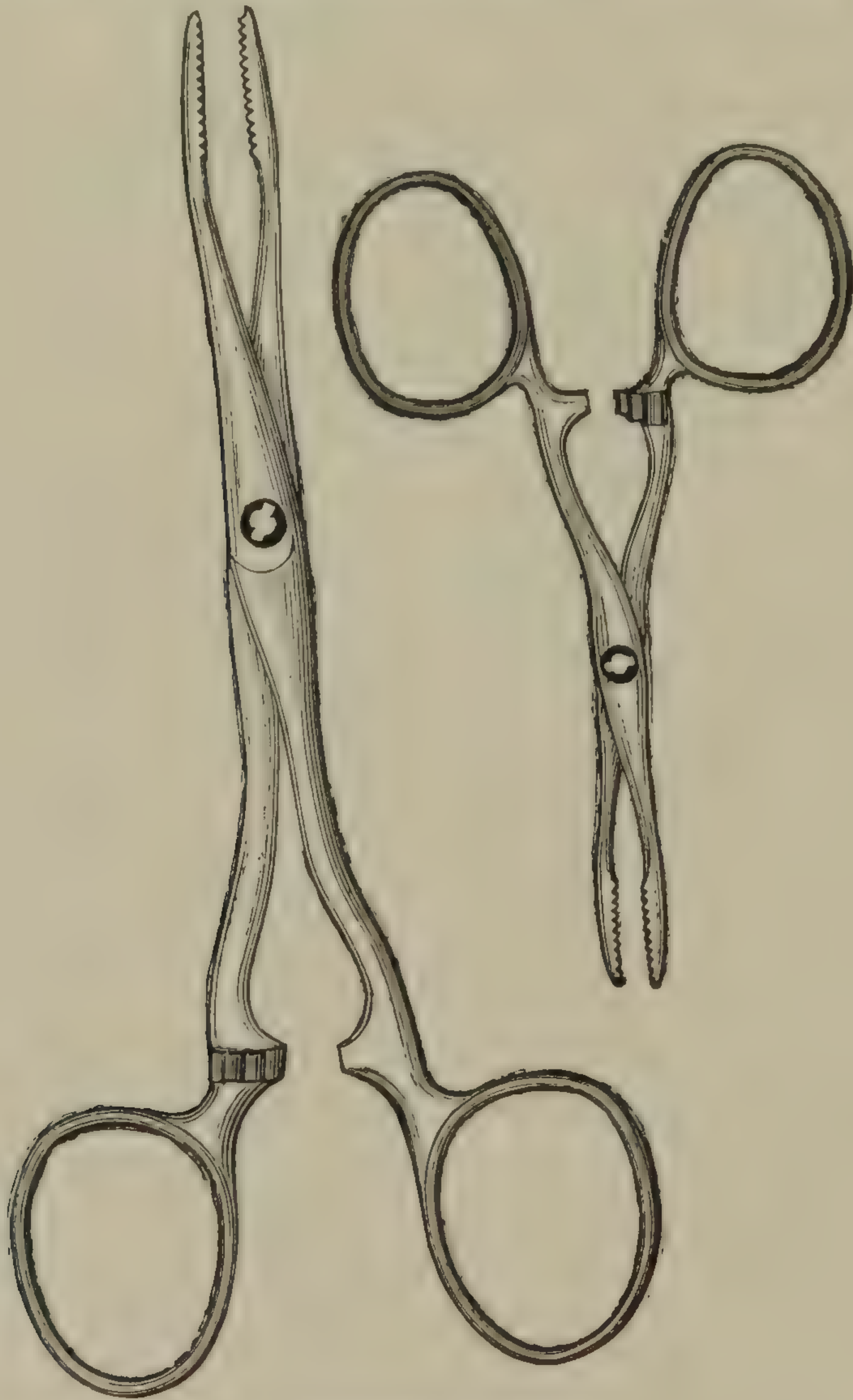
the halves should be ligated separately, and then the two parts tied together snugly. Instead of this method of ligation the "Staffordshire knot," so called, should be employed. This is made as follows: A needle made like an awl, with the eye near the point, and armed with a strong silken cord, is sent through the pedicle, the loop caught and held while the needle is withdrawn; and then the loop is enlarged by pulling on it, till it can be thrown over the top of the collapsed ovarian sac. One free end of the ligature is next put through the loop, and the two ends drawn upon. The force shortens the loop until it begins to constrict the pedicle; and by pulling hard enough the strangulation becomes complete and satisfactory. A good knot is made, and the ends are cut off a half inch or so from the knotting. The cord being silk,—an animal product,—will dissolve, or in time be encysted. While I, after making experiments, can not see appreciable advantages of the Staffordshire over the ordinary twin ligature, I admit that it is good if made tight enough. But it requires more strength to obtain a given pressure. I do not like to be obliged to carry the loop of the ligature over a multilocular mass which is large and unclean. If the pedicle be long enough a temporary cord can be thrown around it to hold it while most of the cyst is cut away, and the Staffordshire tie applied. This gets rid of one objection to the Tait method of ligating the pedicle.

If there be no adhesions to look after, and no complications of any kind to care for, the abdominal incision may be closed with silk sutures placed a third of an inch apart, beginning at the lower end. If the aperture be no more than four inches in length, eight or ten interrupted sutures will be needed in the closure. The sutures should be about eighteen inches in length, with a glover's needle on each end. Each needle is entered at the depth of the wound, just transfixing the peritoneal lining of the belly, and coming out through the skin a half inch from the border of the wound; the other needle enters in the same way and comes out correspondingly. Each suture may be tightened and tied as it is made ready, till the three or four upper ones are reached in making the seam. A thin and long sponge rests beneath the sutures, as they go into place, to absorb any blood the needle punctures may set free. Before the three or four upper sutures are tightened the sponge is adroitly removed. While the sutures are going into place a little iodoform should be dusted on traumatic surfaces, and on the seam after all sutures are in place. Then across the seam, reaching



to the flanks, should be placed strips of rubber adhesive plaster to support the sutures and the abdomen if vomiting put a strain on the belly's walls. Over the adhesive strips should be placed a pad of cotton-wool that has been dusted with iodoform; and over all should be bound with tapes a folded compress of cloth. The patient now may be removed from the operating table to her bed; a hot brick put to her feet; and be properly covered with blankets to await reaction.

Such, in as few words as may express the procedure, is a simple ovariectomy, with no complications. To learn the intricacies



Hæmostatic forceps.

and complexities of the operation is a later consideration. If there be organic attachments of the walls of an ovarian cyst to abutting or adjacent folds of intestines, the fortuitous connections are to be overcome in order to liberate the cystoma. While this complication is not difficult to overcome, the cleaving apart of two structures without lacerating either, is a delicate



piece of manipulation, especially if vessels of considerable size inosculate and intertwine. It may do to lacerate the sac which is to come away, but it will not do to tear the coats of an intestine. The separation is made with snips of scissors, the cleaving power of the finger nail, and with the dull spud I have so often described. The fortuitous adhesions are exudations of plastic lymph thrown out by inflammatory action, and organized by vital processes common to living tissues,—as in the repair of a wound or in the union of a broken bone. While lacerating the neoplastic tissue, hæmostatic forceps are to be at hand to arrest bleeding and oozing. A dozen pairs of such implements should be at command; some short to nip a bleeding point, and others with long beaks to compress a hemorrhagic line. Five strands of silk are to be at hand to ligate vessels and vascular masses before they are severed. Such ligatures are to be left inside the peritoneal cavity, as stout ligatures on the pedicle. But, when considerable dissection is needed to free an ovarian sac from surroundings, there will be considerable oozing of blood, lymph, and serum into the peritoneal cavity, where it will ferment and excite peritonitis—the bane of ovariectomy.

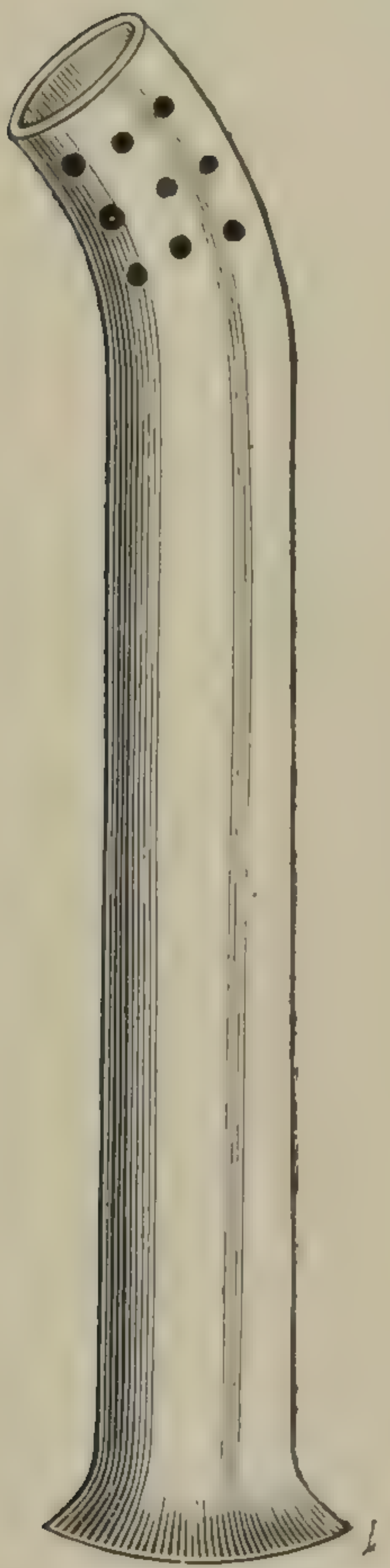
To get rid of oozings and exudates there must be drainage. To talk about sweetening fermenting fluids by the use of antiseptics is to babble nonsense. There are many devices for draining the peritoneal cavity; one is to cut two or three of the uniting sutures in the abdominal incision, and turning the patient on her side, let the noisome fluid run out as a barrel is emptied of lees at the bung. The lives of many women have been saved in this way; and the process is made more efficient if a syringe or siphon be utilized to wash out or rinse the abdominal cavity. A fountain syringe, so called, is a valuable implement to bathe and douche an inflamed peritoneum following ovariectomy.

For ordinary drainage a glass tube, figured in the cut, is very valuable. It is to be inserted between abdominal sutures and left *in situ* for several days. The vitreous implement does not break readily, therefore harm on that score need not be apprehended. The eyelets permit peritoneal and pelvic fluid to flow into it; and a small syringe may be used to take, by suction, samples of the fluid. A pledget of cotton-wool is to be kept in the mouth of the implement to prevent the entrance of dust. A small glass tube, with lint on its lower end, makes a good piston to draw out a sample of the fluid which flows into the tube. When the plunger, as seen in adjacent cut, is sent to the bottom



of the drainage tube, a finger placed on the upper aperture converts it into the suction valve, and takes liquid from the abdominal cavity.

Under coughing, sneezing, vomiting and other bodily efforts, fluid is forced out of the abdomen, through the glass drainage tube. If necessary the patient's body could be so turned as to let peritoneal fluid flow out of the tube's mouth. Besides, if



Self-drainage tube.



the grade of fever indicated poor drainage, a syringe could be used to force water into the abdomen, and execute a rinsing process. To cleanse the peritoneal cavity is to lower the temperature of the body and lessen septic fever.

The surgical nursing of a case of ovariectomy consists largely in keeping septic fluids out of the peritoneal cavity. The ordinary female nurse can not be made to understand the importance of the cleansing process. The glass drainage tube is



rarely needed after the fifth day, but may be utilized for ten or more days.

On skillful nursing of the patient depends more than on a well executed operation. As soon as the patient begins to recover from the anæsthesia she complains of pain in the abdomen, and gradually becomes restless. The complaint may become so pressing that it may seem best to give her a hypodermic injection of morphia, but the action of the drug on the intestinal canal is not usually favorable. It develops flatulence and nausea. It is commonly best to treat the stomach to sips of hot table tea. In a few hours the traumatic pain subsides, but tenderness of the abdomen succeeds. Any considerable thirst may be allayed with a few drops of lime juice in a scanty amount of water. If vomiting set in, the nausea may be from the effects of the chloroform, and not from any reflex activities from the wound. No food is to be permitted on the first day. On the second day an enema of hot soup may be allowed. The injection may escape, yet gas will pass with it. The stomach may be refreshed with ginger ale, or ginger water. The temperature of the body is to be taken twice a day at least, and at any time when it should be known whether the fever be increasing or subsiding. If the temperature be 101 and rising, attention should be paid to drainage, if a tube connect with the abdominal cavity. The drawing off of fermenting fluid from the peritoneal sac will lessen the fever. If no drainage tube be employed, the patient may be bathed often to reduce excessive heat. Should the temperature go to 104, the wound in the belly should be opened at some point in the suturing, and a glass tube sent in to test the state of things there. If fermenting fluid be present, it should be drained away; or warm water should be poured in to dilute the poison, and to assist in its escape by drainage. This is a critical period in the patient's career; and both surgeon and nurse should give unremitting attention to the wants of the case. A dessert spoonful of sulphate of magnesia in a half tumbler of water is to be prepared, and the patient is to take a tablespoonful of the mixture every half hour. Enemata of hot water are to be repeated every two hours, till the bowels give passage to feculence or flatulence. Such escapes relieve the patient's abdominal distresses, and lower the body's temperature. After such discharges rest and sleep may be expected, and a general condition of improvement.

The state of the bladder is to be watched from the start. It is not uncommon for a patient who has undergone ovariectomy



to say that she has no inclination to pass urine—that she is benumbed in regard to that function, yet the surgeon, nurse, or assistant should employ a catheter within six hours of the operation if no urine can be voided; and artificial evacuation should be kept up every eight hours till the power to urinate is restored. A hot crockery plate placed upon the hypogastrium favors ability to void urine. The catheter employed may be flexible or metallic. I prefer the velvet-eyed instrument made for the male. Under favorable symptoms a teaspoonful or two of beef tea may be swallowed on the second day, but it is not best to press the use of nutriment. The stomach is not in a condition to digest; and accumulations of nutriment favor fermentation and gastro-intestinal disturbances. A half gill of hot gruel, made of corn meal, with a flavoring of ginger, is generally more palatable than any broth of meat.

If the third and fourth days pass without much stomachic trouble or intestinal disorder, the patient may be considered quite out of danger, especially if the temperature be not high, some nourishment be taken, and naps of sleep be snatched now and then. The fifth should be the last of critical days, yet there may arise unfavorable symptoms any time during the healing processes. An abscess in the line of the abdominal incision, occlusion of the intestines, nephritic complications, hemorrhages, fevers and nervous disturbances, are contingencies to be considered all through the recuperation which may last three or four weeks. A patient doing well from the start may be comparatively well in fifteen days; a longer time for recovery is the rule.

The drainage tube, when employed, may be removed on the fourth or fifth day; and the sutures on the seventh or eighth. Adhesive strips are to be employed for fifteen days; and an abdominal belt for thirty days.

When a patient dies on the fourth, fifth or sixth day, the cause is traumatic peritonitis. Lack of food, sleep and rest, is exhausting, but the poisoning of ferments—exudates and effusions in the peritoneal cavity—determines the fatal issue. Knuckles of intestines become agglutinated and held rigid. The normal and necessary vermiculation is cut off. At an autopsy the folds of intestines seem glued together, as do the cerebral convolutions in brain fever. From such agglutination there is no relief—no method of cure. The injection of warm water and free manipulation of the bowels with the hand, is the only method of diluting the gluey exudates, and exciting normal



vermiculation. Intestinal masses held together with the gluey exudates can seldom be restored to a recuperative condition,—the prognosis is unfavorable.

However, a desperate state is not to deter a re-opening of the abdomen, and an inspection of critical conditions. If gangrene be present, as in one case I inspected before an impending death, nothing can be done to stay the dying process. The puncturing of fearfully distended intestinal folds to permit the escape of gas, is practicable and to be executed. In a case of the kind I saved my patient. As soon as the gas escaped the crisis passed,—every symptom improved at once; and recovery occurred without other untoward intervention.

In the management of “bad symptoms” in an ovariectomy case, friends of the patient may wonder that something specific can not be administered to allay the persistent vomiting; but the old practitioner who has managed cases of strangulated hernia and puerperal peritonitis, knows that medicines of that sort are a *desideratum*. The stomach is irritable, sickened with bile and the upward flowing of feculent matter,—nothing goes downward, the intestines have ceased to vermiculate in their lower folds or convolutions, and remedies cease to enforce healthful activities. In one case I allayed persistent vomiting by administering very dilute viburnum cordial,—ten drops in a wineglass of water. The effect was charming from the start; but I have known sulphurous acid and camphor water to accomplish as much.

In the management of the abdominal wound it must be borne in mind that a failure to unite would be followed by ventral hernia; and perhaps the charge that the surgery was bad. A woman in Indiana sued her surgeon for damages because the walls of the belly failed to unite with strength enough to resist protrusion of viscera as far as the skin; and she secured a verdict in her favor. I think the action was unjust, and so testified in court, but the jury voted adversely to the surgeon. The accident of hernia in the line of union along the linea alba, may happen to the most experienced ovariectomist. In an exploratory abdominotomy as little harm as possible should be inflicted upon pathological states. If cancer be present, with extensive exudates and interminable complications, let the wound be closed with sutures, adhesive strips, and such other dressings as the conditions of the case seem to demand. The patient will not be seriously harmed by the exploratory incision.

I should mention that, in manipulating a complex case of



adhesions, it may be convenient to ligate the pedicle of an ovarian cystoma, and sever the mass from the stump before all morbid attachments can be strangulated and disengaged. I had to do this on one occasion, and found no obstacle in so doing. The case did well,—recovered. An experienced operator is not disturbed at an unexpected complication, but enures himself to any emergency. Where attachments exist it is important that ligatures should be tied with the greatest care. After shrinkage a ligature becomes loose,—permits hemorrhage. It is a sorry complication to find a patient has bled to the collapsed stage from an insignificant vessel inefficiently ligated; and it is not an easy matter to re-open the abdomen, hunt for the bleeding point and secure it. Then there is a mass of coagula to turn out of the belly, with damaging *debris* remaining. Such complications are truly desperate.

An ovarian cystoma may be discovered in connection with pregnancy, though not until the belly has been opened; and it then becomes a question what shall be done under the circumstances. Inasmuch as operators have proceeded to execute ovariectomy, leaving the pregnancy undisturbed, and have done so without detriment to the womb or its contents, there can be no question as to the propriety of excising the ovarian sac, and not meddling with the pregnant uterus. In the same way, if an enlarged spleen were a complication, it is the duty of the operator to take the ovarian cyst, yet not execute splenectomy. However, the excision of both spleen and ovarian cystoma has been reported.

When both ovaries are found to be diseased it is the duty of the surgeon to take both, to avoid a second operation within a brief period of time. If one ovary be cystomatous, and the other carcinomatous, the non-malignant organ may be taken and the other left. However, if the malignancy be circumscribed and easily removable, it should be excised,—at least as far as practicable. What I would enforce is that some risk may be assumed with a chance of getting rid of a malignant mass, yet not too much. To a woman with children a little of uncomfortable life is preferable to death.

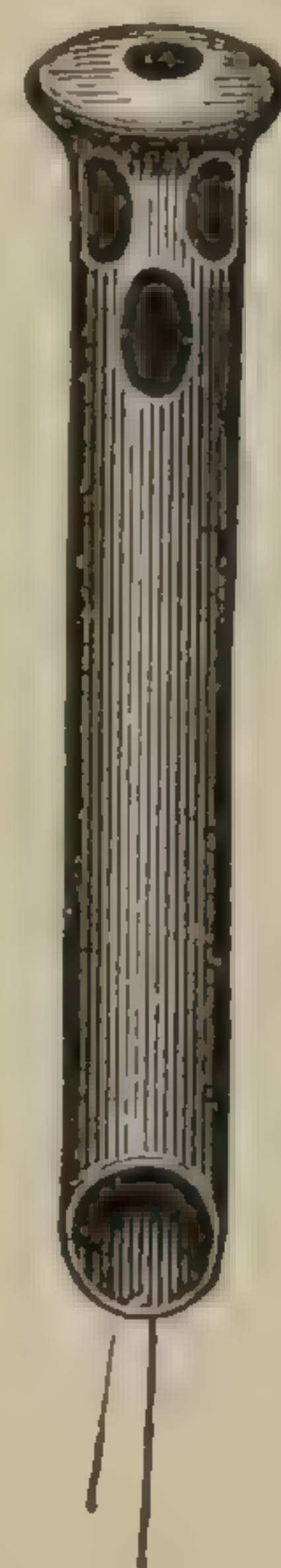
Much has been written upon the treatment of the pedicle and stump. At one time it was advisable to sever the pedicle with an incandescent wire; then it should be ligated and the traumatic stump seared with a hot iron. Later it was advised to stitch a cap of peritoneum over the puckered end of the stump; but none of these methods are in as good repute at present as



ligating the pedicle and dropping the stump into the cavity of the pelvis. The traumatic face gets a covering of exuded lymph in a couple of hours, and is not likely to become joined with a peritoneal surface.

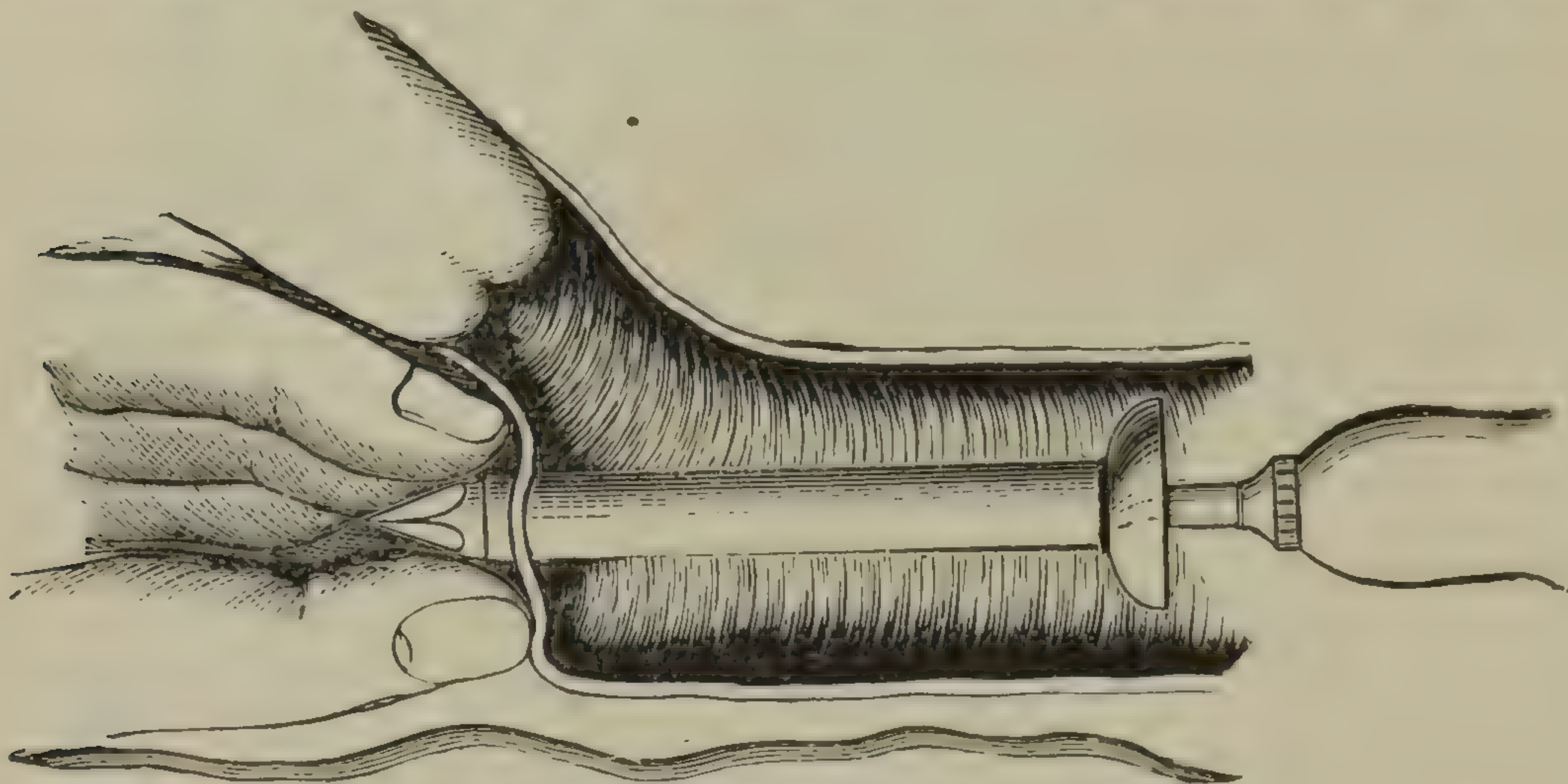
In the execution of a complicated ovariectomy the operator is to bear in mind that the ureters may be united to the cyst through the organization of exudates. I once came so near tying a ureter that I feel like administering the precaution. The point where the blending occurs is where the ureter bends over the brim of the pelvis; and that is where the tumor bears heavily upon the urinary conduit.

Before dismissing the subject of ovariectomy I would say something of methods of drainage devised by myself, and which still hold a place in the practice of several surgeons. The first method is through the means of a pewter self-retaining drainage tube, to be utilized in evacuating the Douglas *cul-de-sac* at the most dependent point in the peritoneal cavity. The diagram represents its size and general utility. The head flares to keep the instrument from falling out of place; and is perforated to permit fluids to enter its cavity. The head rests in the Douglas *cul-de-sac*, and the lower end in the vagina. The wire in the inferior segment extends through the vulvar aperture, and is to be pulled upon when its removal is desired. The implement is dragged into place by means of a long needle attached to the wire. After an ovarian cystoma is removed, the operator, with the left hand and arm in the abdominal and pelvic cavity, groups the fingers against the peritoneo-vaginal septum, and receives the point of a trocar and canula carried into the vagina by the right hand, and made to transfix the partition mentioned. The following diagram represents this stage of the procedure. After the grouped fingers in the pelvis receive the entering ends of the trocar and canula, the tube is grasped, and the trocar with the other hand is withdrawn. The next thing is to have a blunt-pointed and curved baling needle sent through the abdominal aperture to the fingers in the pelvis, when it is made to enter the canula till its curve impinges on the tube. To the needle's eye a wire is threaded; and this at its other end connects with the entering end of the drainage tube. The right hand withdraws the canula, the needle and wire following. The right hand fingers next pull upon the wire, and the left hand digits direct the

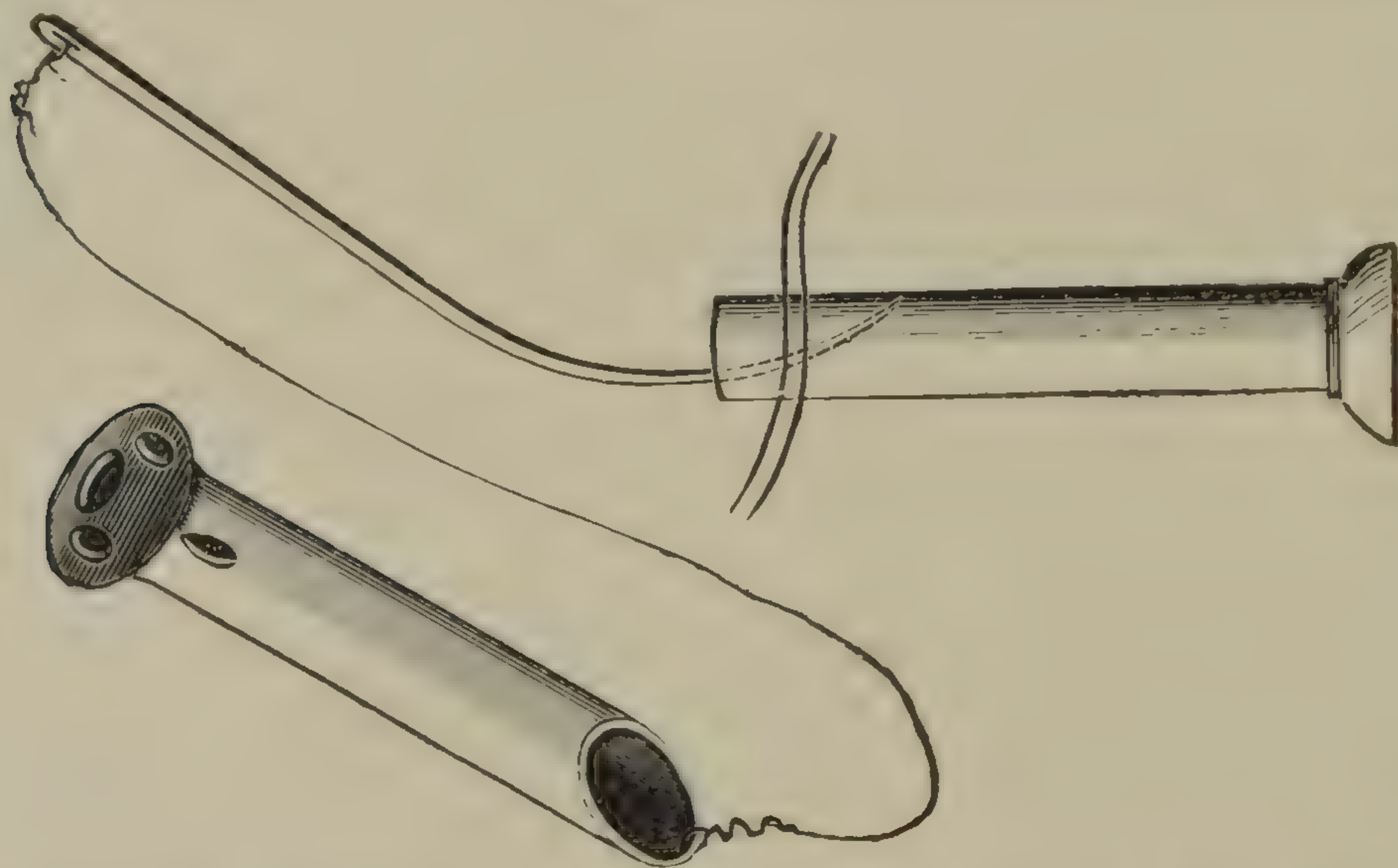




drainage tube into the peritoneo-vaginal aperture and push it down to its flaring head. The needle is snipped from the wire, and the operation of placing the tube is completed. The emptying end is not deep in the vagina, hence a probe may be sent



through it to dislodge a coagulum in either of the eyelets, or the nozzle of a syringe be utilized to wash out the *cul-de-sac* of Douglas. An instrument with a long nozzle is the best for such a purpose. The drainage is generally free and satisfac-



tory, but the eyelets in the head may get choked with coagula. To free the implement it may be seized with the thumb and finger, and then revolved or pushed and pulled to clear the eyelets. Besides, as has been suggested, warm water may be employed with a syringe to flush the pelvic cavity.

The diagram represents the self-retaining drainer *in situ*. Its flaring head prevents its escape until pulled upon. As soon as removed the aperture in the peritoneo-vaginal septum heals. The tube may be kept in place till foul smelling fluids cease to



be discharged. I have removed it on the fourth day, and retained it until the fifteenth. It is an efficient drainer when well handled. In high bodily temperatures much time should be spent in clearing the drainage tube, and in manipulating

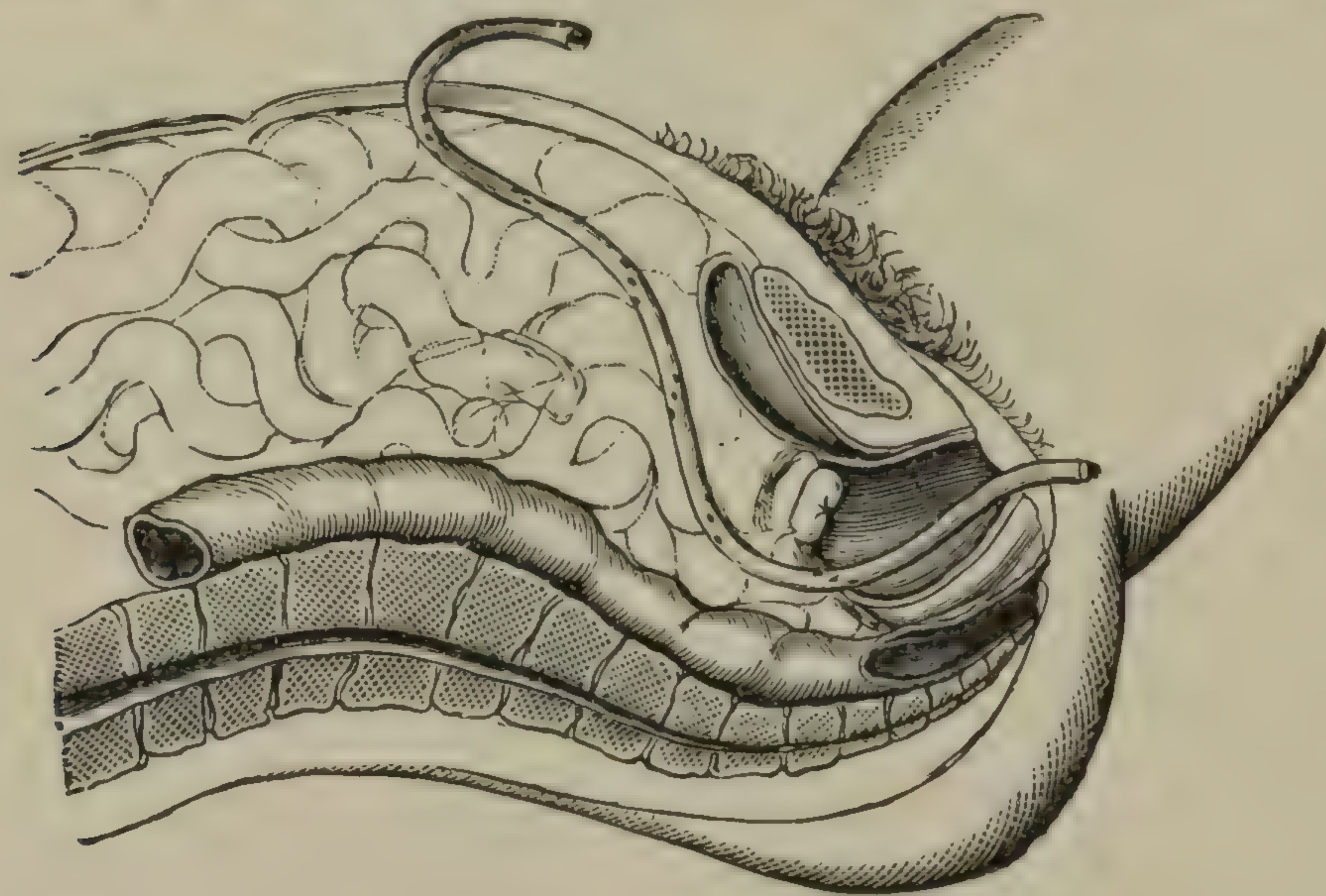


it. I have used a finger in the rectum to force septic fluids from the *cul-de-sac* of Douglas to the eyelets of the drainer. Inasmuch as fluids gravitate to the recto-vaginal fossa they have the very best opportunity to find an escape.

There is still another device of mine to drain the abdominal cavity. It consists of a long and flexible tube, made of soft rubber, and pierced with velvet-eyed apertures. The tube reaches from outside the abdominal parietes, through the peritoneal cavity to the floor of the pelvis and out through the peritoneo-vaginal septum and vagina. It is easily introduced and conveniently managed. It demands a special trocar and canula to transmit the tube through the peritoneo-vaginal septum. After the ovarian stump has been cared for, the left hand is introduced into the belly,—to the bottom of the pelvic cavity behind the womb. There the grouped fingers receive the large trocar and canula carried into the vagina, and to the spot to be punctured. The fingers in the pelvis receive the point of the instrument, and grasp the canula while the trocar is withdrawn. The rubber tube is now conducted through the abdominal and pelvic cavities to the open-mouthed canula, which receives it, and conducts it through the vagina, where it is free to drain fluids from the peritoneal cavity to the outer world. The accompanying diagram exhibits the rubber drainage tube *in situ*. Eyelets here and there allow fluids to enter; and, if a warm douche be given to the abdominal and pelvic viscera, a syringe may be



utilized to execute the operation. The end of the tube projecting from the abdomen may be plugged with lint, or bent over and constricted with a thread; the lower end, protruding from the vagina, is left open. The eyelets are along the middle course of the tube and not near the ends. It is a very efficient drainage tube, and is to be utilized when the number of overcome adhe-



sions demand an escape for exudates, effusions, and hemorrhages. The tube can be drawn up and down, and rotated, so that coagula are broken up, and fluids invited to enter the conduit and flow away. By sending washes into either end of the tube with a syringe septic pockets may be drenched, purified, and drained. No other drainage tube completely effects the purpose. The implement is to be removed in four or five days, or when drainage is no longer necessary.

In closing the subject of ovariectomy I would be pardoned for not introducing all the means and instruments commended by one author or another for executing the operation; but I have thought the best way would be to portray the execution in the simplest possible manner. I might have displayed a great variety of instruments commended by Greig Smith, and other authors, but have not thought that the reader would be thus best instructed. There are several ways of doing most things. I have amputated the thigh with a scalpel, severing the femur with a key-hole saw. It is preposterous to think that an ovariectomy can not be performed without Nelaton's cyst forceps at command, or Well's cyst trocar; or that the place of the chloroformist, the nurse, the assistant, the table of instruments, and the operator, is to be chalked out on the floor before the patient is brought into the room. All apartments are not alike;



and the vantage of light has to be consulted. Complicated affairs are vexatious. We need clamp forceps, small and great; but not all kinds figured and described. In a hospital there may be hundreds of things that can not be commanded in a rural practice. The *serres nœud* or *ecraseur* of Kœbule is rarely needed, especially since the rubber rope has come into use. The Sænger method of managing the Cæsarian section consists essentially in the use of deep silver sutures to close the uterine parietes; and it is not likely the scheme will be heard of twenty years, but animal ligatures will take the place of metallic threads. Besides, the continuous over-and-over stitch will take the place of two rows, the deep and the superficial. In these days of unrivaled progress the greatest and grandest name can not remain long at the front!

I should mention that pinioning the arms and legs of the patient to the operating table is well enough, yet not absolutely necessary if assistants be at command to hold the limbs. A patient half under an anæsthetic will poke her hands into the abdominal wound.

Before closing the abdomen all sponges, forceps, *et al.*, must be removed. A large sponge to hold intestines out of the way is to be removed early.

I should be derelict indeed if I were to advise my readers not to increase the gynæcological departments of their libraries; on the other hand I advise them to purchase largely of outcoming works. Books are like money,—the more we have, the more we aspire to attain. I confess that we have to wade through a stack of chaff to find a kernel of wheat; but it is golden grain when found, and worth the endeavor. Besides, the more of a reputation in ovariectomy an operator acquires, the keener grow his desires to consult the latest and best authorities. He can not afford to be a laggard in a calling he has espoused.

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### ECTOPIC GESTATION.

The theory of conception is that the fertilizing principle of the male reaches the mature ovum in the uterus, in the Fallopian tube, or on the surface of the ovary, and penetrates the egg's envelopes, germ-cells and sperm-cells blending. Such is impregnation, but not conception; the latter occurs when the fecundated ovum becomes *fixed* at some point where it is to be nourished and evolved into a fœtus. Conception, then, is the



physiological fixation of the fructified ovum. The attachment usually occurs in the decidual meshes of the endometrium; and the pregnancy is intra-uterine, or normal; but it may be extra-uterine, or abnormal; and then the gestation may be denominated *ectopic*. The common belief is that spermatozoa, through ciliary action, ascend the uterine cavity, enter the Fallopian tubes, and make way to the *morsus diaboli*, and even attain the surface of the ovary. Then, if the tardily maturing ovum be within its peritoneal capsule, the conjunction of the



two elements has to be waited upon by the spermatozoons; but the consummation occurs as soon as the capsule bursts and the ovum becomes accessible. Possibly fertilization transpires while the egg is within the crypt which developed it, or as it hangs upon the border of the bursted follicle. This seems probable from the fact that the fimbriæ of the oviduct are ready to grasp the ovum and start it along its course to the uterus where it is to be nidified and evolved. But some accident may happen to the process of transplantation; the ovum may lodge at some obstruction on the way—in the course of the Fallopian tube—and become fixed and developed outside the uterus—become an extra-uterine pregnancy. That such a pregnancy is possible there is no question; but that it may occur on the surface of the ovary, within the mesh-work of the infundibulum, or be dropped from the genital tract and received on the peritoneal surface and there developed, is very questionable. Possibly the fecundated ovum might drop between the ovary and infundibulum, and be not wholly without germinating influences, and there find fixation, is debatable, but as an argument is thrown out by Tait, who denies any affinity in a nutritive sense between the envelope of the egg and the peritoneal epithelium. The critical observer says: “That a fertilized ovum may drop into the cavity of the peritoneum and become developed *there*, is a contingency I can not accept for a moment; for the powers of digestion in the peritoneum are so extraordinary that an ovum, even if fertilized, could have no chance of development.”

While considering this matter in a general sense, with near



and remote bearings, it may be seen that the great observer is possibly mistaken. Experimental physiologists have transplanted the testicles of small animals from the scrotum to the peritoneal cavity; and the transplanted bodies have lived and thrived as epiphytes. To have a fertilized ovum secure such attachment, and be nourished first through membranous transudation, and afterwards by developing villi and vascular anastomoses, is not at variance with physiological operations carried on elsewhere. The wall of an ovarian cyst which has had its pedicle strangulated, has been nourished abundantly through fortuitous vascular connections with the omentum. The adhesions which so commonly obstruct the course of the ovariologist are made up of similar connections of a vascular character. The transplantation of bits of cuticle, called "skin grafting," is an analogous process. The freshly excised bud is transplanted to a vascular bed, and there it receives vivifying supplies from surrounding structures. Thus a fertilized ovum fortuitously transplanted to the surface of the peritoneum would become enveloped in a vascular network in two or three days, and in ten days attain the size of the growing ovum represented in the diagram. Evolution is so rapid in the well planted chorion of the growing foetus that it will reach the bulk of a hen's egg at the end of a month's gestation.

While it be conceded that extra-uterine pregnancies are generally tubal, there is substantial evidence that a fertilized ovum has been "fixed" to peritoneal surface in the folds of intestines, and there developed till a bursting of the "membranes" resulted in fatal hemorrhage. To deny this would be to reflect upon the truthfulness of candid and careful observers. Granting that journalistic literature is here and there smirched with fanciful details of ectopic pregnancies, there are a few cases so clearly sketched by competent observers who can not be declared untrustworthy. In 1869, Lecluyse, in a Belgian journal, reports that an intra-uterine pregnancy became ventral by the ovum escaping through an aperture left in the uterus by the defective healing of the





wound of a previous Cæsarian section. The placenta became attached to the small intestines, the connection being epiphytic and highly vascularized.

It is to be considered that in tubal pregnancy the expanding walls may yield at some point and the placental chorion become hernied, or so transplanted that an epiphytic connection be made with the walls of an adjacent intestine. This requires a stretch of the imagination, yet it is as probable as other explanations offered by several writers upon the subject.

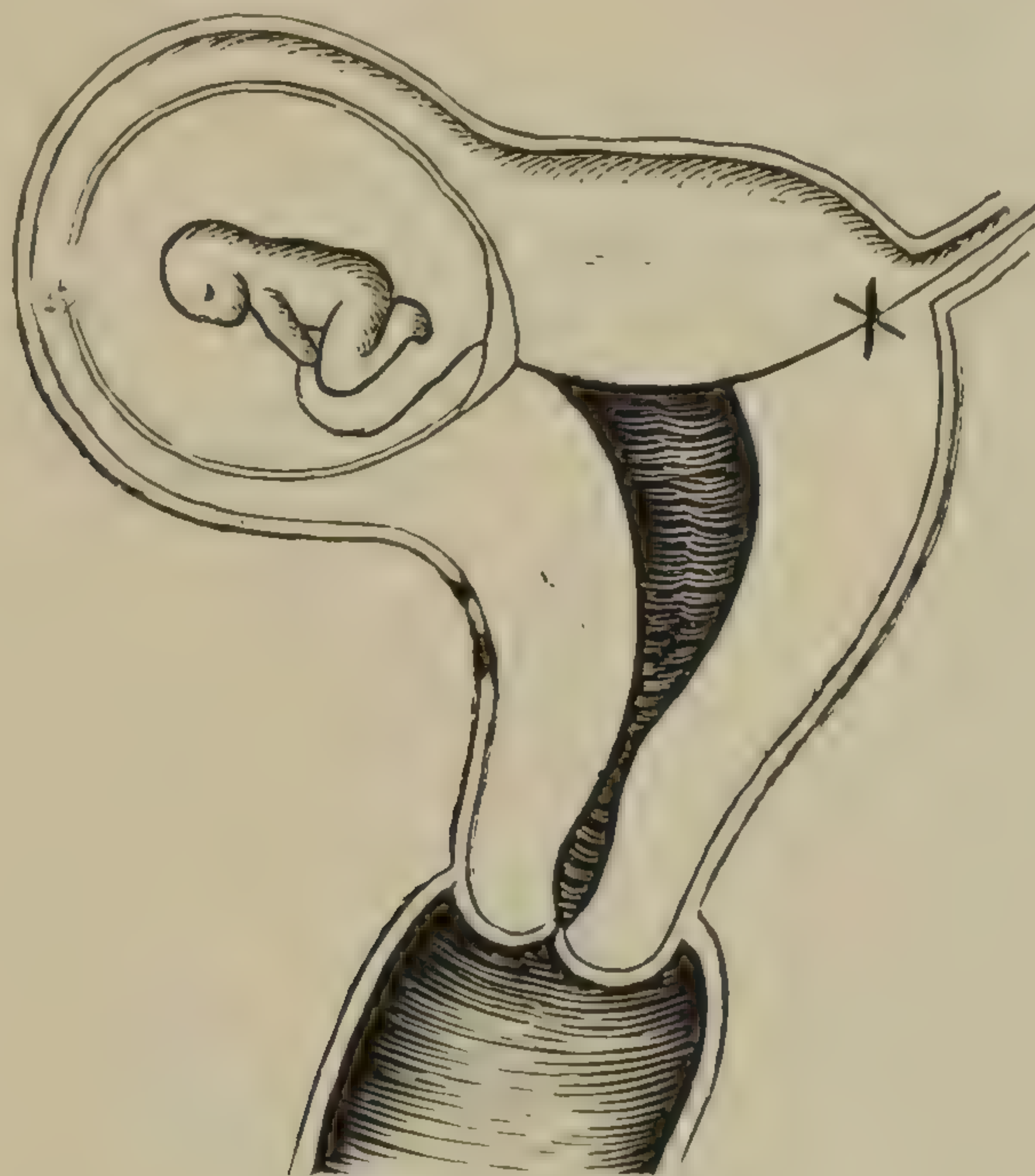
In a surgical sense it is fortunate that ectopic pregnancies are tubal, for an abdominal gestation would be formidable to undertake a rescue. The vascular mass could not be gathered up, ligated, excised and the patient made safe; while in a tubal gestation, after bursting of the "membranes" the bulged segment might be ligated and excised with safety.

Women while developing an extra-uterine foetus do not know they are pregnant, for they may menstruate with regularity, and never suffer a pain till the impending catastrophe occurs. But when laceration occurs the pain is terrific, and the escape of blood into the abdominal cavity blanches the face and displays the signals of approaching dissolution. Then, to open the abdomen, remove masses of coagula, seek the bleeding vessels, ligate *en masse* the sources of vascular supplies, and cleanse the traumatic and peritoneal surfaces, is an heroic piece of surgery.

To diagnosticate an ectopic gestation is not easy. At the end of three months there may be a placental murmur to be heard, and feeble sounds of a foetal heart, but these are exceedingly unreliable. The abdominal enlargement is in the right or left hypogastric region; and the tumor is sensitive to pressure. Ovaritis and salpingitis are suspected, yet the tumefaction is too great for those difficulties. An ovarian cystoma is not out of the question, yet there is not a decided call for ovariectomy. The tumefaction may be uterine, though the sound, if used, does not reveal much enlargement of the organ. May there exist ectopic pregnancy? Yes, but the evidence is not of a positive character. Besides, extra-uterine gestation is not common—is quite rare. In the doctrine of chances, the presumption is against abnormal pregnancy. Does one practitioner out of ten, in an extensive experience, ever encounter a case of ectopic gestation? I have been called to diagnosticate a dozen cases of extra-uterine gestation, but never encountered but two, and one of these was the delivery of a dissolved foetus



by the rectum. While the average physician is to be on the alert for ectopic gestation, he is not to think every tumor of the abdominal cavity is a case of the kind. A medical gentleman of my acquaintance has made himself famous for having had five or six cases of ectopic pregnancy, all vanishing under the influence of electrolysis!



Ectopic Pregnancy.

If the pregnancy be "interstitial" or in that part of the Fallopian tube which is confined to the uterine parietes, the termination of the affair may be normal. The foetus may gradually fall within the uterine cavity; but it is as likely to develop into the tube, and rupturing that canal, fall into the peritoneal cavity, the course of growth being in the line of least resistance. If it be easier for the developing ovum to squeeze its way into the uterine cavity it will do so; but if the yielding be outward or away from the womb, the result will be disastrous. It can not be determined exactly at what period of gestation the tube will burst from over-distension, but the commonest time is between the tenth and fifteenth week. If the woman survive the shock of rupture, the dangers of hemorrhage and peritonitis, the foetus usually becomes encysted in the abdominal cavity, and may remain in the sealed sac till after succeeding pregnancies of a normal character have come and gone. At length, in the course of time, the foetal skeleton, held together with ligaments, and bathed in saponified flesh, ulcerates its way into the rectum, and is delivered *per anum*. Such is the history of an ectopic gestation which does not eventuate fatally, as most of



them do; but the delivery by a fortuitous route, may be not one requiring a high order of skill;—it requires more patience and wisdom to sustain the suffering woman while she goes through an extended period of recuperation.

To have a clear understanding of “off cases,” while considering peculiar conditions, it must be comprehended that a tubal pregnancy may become displaced, the developing ovum getting between layers of the broad ligament, and gestating there. This transposition would bring the foetal mass against the external surface of the peritoneum, converting the gestation into the extra-peritoneal type. This by no means uncommon variety goes to prove that a fertilized ovum may become epiphytic on either surface of the peritoneum. The pregnancy developing between the layers of the broad ligament was tubal or tubo-ovarian at the start, but in the course of the ovum-growth—moving in the course of least resistance—slid into the connective tissue between the two folds of peritoneum. However, such interference with the normal state of adjacent structures could not take place without matting together the contents of the Douglas *cul-de-sac*, blending womb, colon, omentum and mesentery into an entangled mass. To unravel such a maze in the living woman would be simply impossible. To disentangle the labyrinth in an autopsy is more than could be expected of an unpracticed observer, hence the misleading reports that find their way into medical journals. The practitioner who stumbles upon the “wonderful case” sees a little and draws upon his imagination for the most of the “report.” He reads exploded notions, presuming they are correct. Thus it has been for years, until it is high time something approximating a true state of things is depicted and understood.

As already stated, an ectopic pregnancy is not painful at first, but becomes so as strain is put upon that part of the tube which invests the foetus. Then paroxysms of pain, attended with throes, as those of labor, succeed one another until relief is solicited. An anodyne may allay the distress for the time, but to be followed by other paroxysmal onsets. In one of these throes the sac may burst, when the woman shrieks as if stabbed, becomes deadly pale, and bathed in a cold sweat, with signs of internal hemorrhage. When such symptoms occur the need of a surgeon is imperative. He may not find the victim alive, but if he do, and the patient be not moribund, it is his duty to open the abdomen at once, and attempt to cut off vascular supplies with ligatures. If he have in mind that it is an over-dis-



tended and ruptured Fallopian tube that is to be treated, he will soon have bleeding under control. A ligature around the tube and ovarian ligament near the uterus, and another outside the bursted cyst, to control the ovarian artery, will cut off blood supplies. Then a third ligature, which shall embrace a segment of the broad ligament and the vascular mass which has constituted counterparts to the chorion and placenta, is to be carefully applied and snugly tied. When the wound is once made clean and dry, the abdominal aperture may be closed with sutures, yet with a glass drainage tube between them. If the patient react well, her condition may be considered favorable for a quick recovery. The operation is much like ovariectomy, only the patient is in a desperate condition at the start.

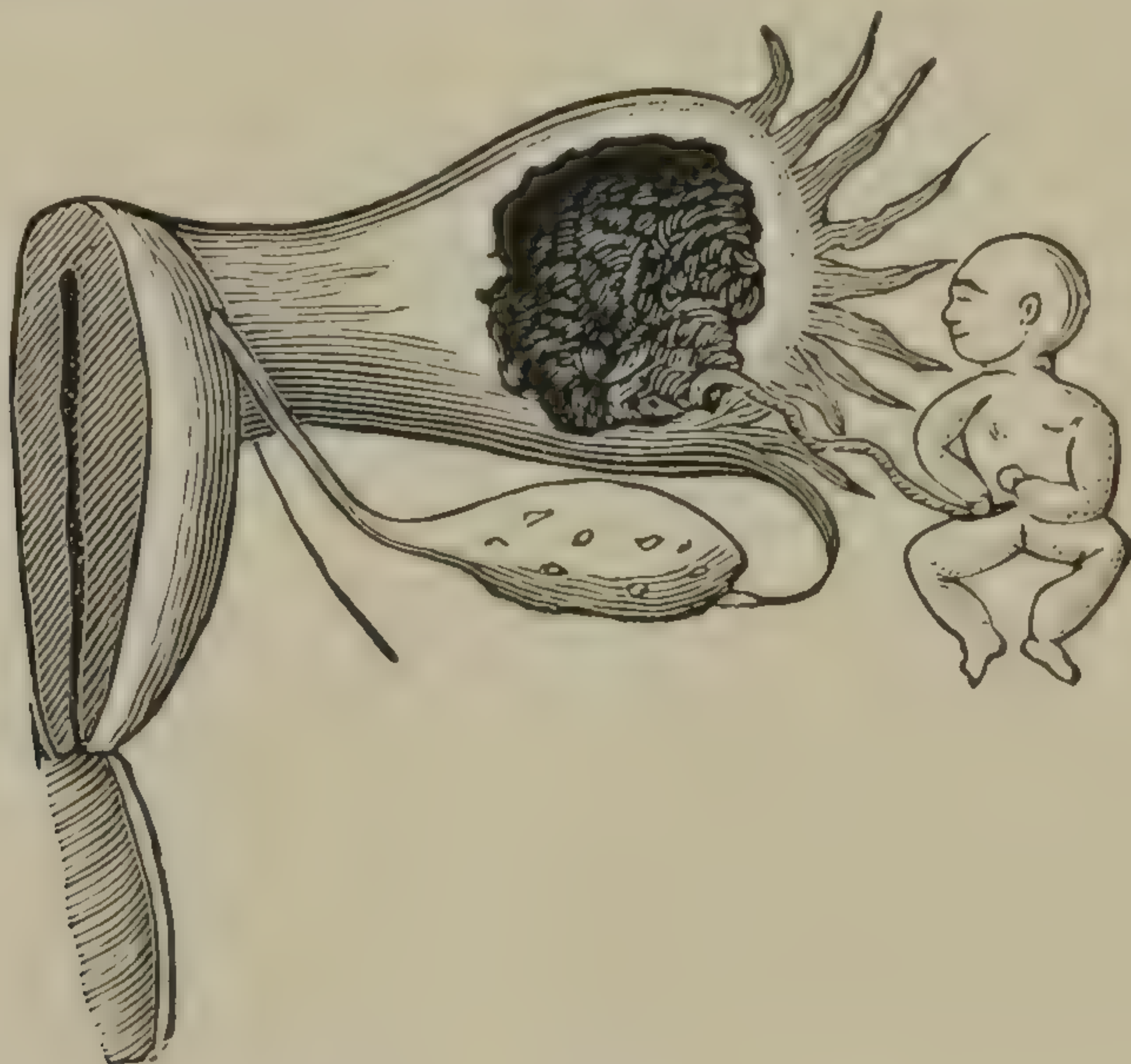


Where fixation of the ovum is among folds of intestines, secondary from primary implantation in the infundibulum, the child may go to term, and the signs of labor come on. Such cases are comparatively rare, yet generally fatal sooner or later. The child must of necessity die, unless timely delivered by abdominotomy; and to take the placenta and not lose the woman's life through hemorrhage, would require great boldness and skill. If the child remain within enveloping membranes and become adipocere or lithopædion, it may continue undelivered for months, and even years. At length thinning membranes and ulcerative processes would allow the incarcerated foetus to perforate the rectum and to find escape. The sapona-



ceous mass would not hang together, yet the bones, through ligamentous connections, might remain connected. Such pathological specimens are to be found in every hospital museum.

When the gestation is at the expanded extremity of the Fallopian tube the rupture is attended with the usual pain and collapse, yet the abnormal mass is so easily ligated and removed that the average laparotomist may execute the saving operation with comparative safety. The rule is to open the abdomen, throw a ligature about the placental mass, and constrict it with a strong cord tied with great force. The peritoneal cavity is then cleaned, the mass cut away, the ventral opening closed with sutures, and the wound dressed with iodoform, adhesive plasters, cotton-wool coverings, a compress, and wrapping tapes. A glass drainage tube would be needed in most cases, for the stump is large, and the effusions and exudates are profuse.



The fault in most cases of ectopic gestation is that opening of the abdomen is put off too long. It is not dangerous to make an exploratory incision; and the benefits attained are generally most satisfactory.

What have passed as hæmatoceles or hæmatomata in the medical literature of the last few years, have likely been the results of ruptured Fallopian tubes depending upon ectopic gestations, the parietes of the duct giving way at the sixth, eighth, or tenth week of pregnancy,—the outpoured blood into the peritoneal cavity and pelvis constituting the sanguineous display. Of course hæmatomata might arise from ulcerations, abscesses, and lacerations of the pelvic viscera, yet the bursting of a foetal cyst, developing in a Fallopian tube, is a common



cause of bloody collections in the peritoneum. The hemorrhage is not profuse enough to prove fatal, yet sufficiently active to produce a hæmatocele—a pelvic accumulation. The novice in pathology must be aware that a mass of blood in the Douglas *cul-de-sac* is not disease, but the result of morbid action or traumatism. Not infrequently a vein in the vicinity of the ovary becomes varicose, and occasionally bursts, blood flowing quite freely for a while. Gravitation takes the extravasated product into the recto-vaginal fossa, and creates a hæmatocele. Subsequently, through decomposition of the coagula and absorption of septic matter, there may be pelvic peritonitis, typhoid symptoms, and a fatal issue,—all from laceration of an insignificant vein. The rupture of a vessel outside the peritoneum, whether in the abdomen or pelvis, gives rise to contingent cellulitis and serious consequences. The rupture of a cyst between layers of the broad ligaments gives rise to hæmatoceles, cellular inflammation, and a long train of morbid troubles. I held an autopsy by invitation of two physicians who had lost a patient with “pelvic cullulitis,” and found a bloody tumor between the layers of the broad ligament. I looked for the developing ovum of an ectopic pregnancy, yet found none. The blood was extra-peritoneal, but in hunting for the source of bleeding I found it to be in the walls of a bursted cyst. There were coagula in the recto-vaginal fossa,—intra-peritoneal blood,—which is confusing, but a still farther exploration discovered that a rent existed in the peritoneum below the bursted cyst, demonstrating that the effusions or extravasations were from one and the same source. The patient had died from peritonitis, and not from the hemorrhages. Hæmatocele of the broad ligament is apt to dissect its way to the rectum, pressing upon the bladder, and interfering with pelvic functions. Such complications are both obscure and annoying. It is well to use the exploring needle, and then the evacuating knife. In regard to the reputed “abdominal” fixation and development of an ectopic ovum, I quote a case reported by Mr. Tait: “The patient, who evidently had extra-uterine pregnancy, and near her term, having been placed under the influence of ether, and the bladder emptied of urine, an incision six inches in length was made through the linea alba with the umbilicus as its center. The abdominal wall was unusually thin, yet more vascular than common; and the peritoneal lining, though natural on its free surface, appeared thick and velvety on section. Immediately upon the completion of the incision the breech and back of the



child, thickly coated with *vernix caseosa*, came directly into view. At the upper part of the wound the omentum was seen lying like a cape upon the child's shoulders, and inferiorly the funis, of natural appearance, passed transversely across the wound, and was traced round the external aspect of the thigh of the foetus to the attachment at its umbilicus. The child was in a kneeling position, its breech presenting toward its mother's navel; its head folded upon its chest, was buried beneath the omentum and transverse colon; the soles of its feet pointed towards the pubes, and its knees resting upon the posterior brim of the pelvis. Its removal was readily effected. The funis was tied and separated in the usual manner; and the child was handed over to the custody of two gentlemen previously appointed to look after its well-being. It was now seen that the gestation had been of the "abdominal" variety; no trace of cyst or membrane could be found. The child had lodged in the midst of the bowels, free in the cavity of the abdomen. A few bands of unorganized lymph of a very friable nature lying upon, but not adherent to intestines, were readily removed by sponging; and about an ounce of clear serum was found in the peritoneal cavity. The umbilical cord was traced to the placenta which had a larger superficial area than natural and covered the inlet to the pelvis like the lid of a pot. The vascular cake extended above the pelvic brim where it had attachments to the colon and abdominal walls. Near its center was a round prominence which seemed to correspond to the swollen fundus of the uterus beneath. Great and especial care was taken not to disturb any of the placenta's connections. But the aperture in the belly was closed, with the cord and tie inside, and no trouble ever came of them. The recovery was complete and satisfactory. The child was vigorous, and thrived as well as if born in the natural way."

Mr. Tait, whose experiences with ectopic gestations are greater than those of any other man, says that this is the only case of "abdominal" or intra-peritoneal pregnancy he has ever encountered. But, as he did not peep under the placenta to see whether the fimbriæ of a Fallopian tube did not furnish the seat of the ovum's evolution, this may have been a case of tubal gestation after all.

At present it is advocated to kill an extra-uterine or ectopic foetus with electricity, to avoid the dangers of an inevitable rupture of the developing cyst. This is done by sending a strong faradic current through the gestating medium, one pole



being in the vagina or rectum and the other on the abdominal walls directly over the ovum, the foetus having to take the full force of the passing current. The agency is not to be tried until the pain created by the developing ovum seemingly threatens rupture. But to kill the foetus is not the end of the trouble. There will be a dead mass to carry, and probably to extrude through some adventitious opening into the rectum, bladder or vagina, with all the dangers and annoyances of the fortuitous discharge. Considering the troubles attendant upon a foetus incarcerated in a Fallopian tube, I would advise an abdominotomy at once, without experimenting with electricity, if the diagnosis of ectopic gestation could be made out. It is as easy to work before the death of the foetus as afterwards.

As already stated, it is so difficult to diagnosticate extra-uterine pregnancy until the pain of rupture comes on, and there is no call nor opportunity to use the battery,—the surgeon alone can administer relief and save the woman.

In the event an abdominal gestation may go on to term, as in the case described by Mr. Tait, both child and mother may be saved if the death-dealing battery be not employed.

As the question now stands I am opposed to the electrical death of the ectopic foetus. But, if the battery have been used, and the “remains” of the pregnancy be a distended Fallopian tube, with almost a certainty that serious trouble will ensue from the presence of putridity, I should advise immediate abdominotomy.

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#### HÆMATOCELE—HÆMATOMA.

An accumulation of blood in the *cul-de-sac* of Douglas, and within the peritoneum, is denominated a *hæmatocèle*, though the term better describes a bloody tumor of the broad ligament, the blood being extravasated between the two layers of peritoneum—a space being forced in the connective tissue between the peritoneal reduplication, and held in the form of a tumor. The extravasation might come from the rupture of a small vessel, vein or artery, and be held incarcerated for a long time.

*Hæmatoma* indicates a collection of blood in the peritoneal cavity, within the pelvis, that would be in the Douglas *cul-de-sac* and might be of sufficient quantity to reach above the brim of the pelvis. The bleeding in that case might come from the bursting of an extra-uterine pregnancy, or from extravasation



of any character. The rupture of an ovarian or salpingian vessel—vein or artery—would furnish the blood. Besides, the vessel of any viscus within the abdominal cavity might through bursting fill the pelvic receptacle and furnish evidence of a tumor or distension. Aneurism and varix are not uncommon accidents, and capillary hemorrhages are always possibilities. Ectopic gestation is the commonest cause of pelvic hæmatoma, and might be followed by hæmatocele. For instance, a bursting ovum or chorion that was developing in the abdominal cavity might become “a sac filled with blood”—a hæmatocele—but if the blood burst through the peritoneal envelope, and had no sac, the hemorrhagic mass would be what passes as hæmatoma, and should thus be called. Tubal pregnancy results in rupture and hemorrhage; and the danger is very great. However, in rare instances the bleeding might cease spontaneously; and the vascular collection be evacuated through the peritoneo-vaginal septum. An over-distended ovarian vessel might burst, and flood the pelvic cavity. In such an accident the earlier the evacuation the safer the issue.

Occasionally an accumulation of blood—hæmatoma—is found in an ischio-rectal fossa, tumefying the region. Such a collection of blood might be taken for tumor of the rectum, and be evacuated as such; or, it might be considered an ovarian or salpingian trouble, with a gravitating mass of fluid. A rational explanation of the hemorrhagic mass would be that a vessel had burst in the loose structures of the ischio-rectal region, and the bloody tumefaction was the result. I have incised such tumors without knowing what was to be the outcome of the operation. After coagula were turned loose, and the walls of the cavity exposed, the manipulative touch demonstrated no cystic walls, but the rough parietes of an accidental collection.

There might develop a bloody tumor—hæmatocele—in the recto-vaginal septum, a bursted hemorrhoidal varix being the foundation of the tumor, yet such accumulations must be rare. I encountered one such tumefaction in a young woman who dated its beginning from a difficult parturition. I disposed of the collection by pressing the lump out of the anal aperture with a finger in the vagina. I was surprised at the ease with which the eversion was accomplished.

In a woman who had suffered for weeks with what had been diagnosticated as an ovarian tumor, I found the recto-vaginal fossa filled with a clotty mass, with no distinctive outlines,—with no evidence of a circumscribed tumor. The patient was



anæmic, feverish, feeble, and in an alarmingly prostrate condition; and no way out of the difficulty presented itself except to open the Douglas *cul-de-sac*, and see what might be developed by the operation. Accordingly I incised the bulging mass, and quantities of blood and serum gushed forth. The flow was startling at first, but soon partially subsided when I enlarged the incision to disengage coagula, and to offer free drainage. I was pleased to find that my patient did not collapse, but rallied instead. Occasional reports from the case during the following six weeks indicated a gradual return of strength, and the expectation of ultimate recovery. I confess to no positive opinion as to the origin of the hemorrhagic mass. The patient was a maiden, and with no suspicion of ectopic gestation. I believed at the time that the blood came from a disorganized ovary or Fallopian tube. In laparotomy cases I have seen the fimbriated expansion to be in highly congested states, with signs of extravasation. Salpingian hemorrhage occurs oftener than ovarian bleedings. However, either body might be attended with a waste of blood, the structures being exceedingly vascular.

In a true hæmatocele, the tumor being between the layers of the broad ligament the lump might be tapped through the rectum, where it has been known to find its way spontaneously.

The extravasation of blood into the connective tissue of the vulva is an occasional occurrence, and may be difficult to diagnose, as all tumors of the kind are. The exploring needle will throw some light on the subject, yet only a laying open of the enveloping structures can disclose the true state of things.

A condition of hæmatoma is that the seriousness of the case is not known until a large amount of blood has accumulated; and there is no positive evidence when the bleeding ceases. If ectopic gestation be known or strongly suspected, the abdomen should be opened at once for the purpose of arresting the hemorrhage and removing the liberated ovum. If placental tufts be attached to intestines as rootlets extend into a favorite soil, the work of disengagement is critical and tedious. The same course is to be pursued as may be when the ovariotomist disengages attachments of the cyst to adjacent structures in what are denominated "adhesions." Vascular filaments pierce the peritoneum and ramify in the walls of proximate organs. To tear such connections would be to seriously complicate matters. The hemorrhage would be dangerous, and the traumatism disturbing—peritonitis being a probable sequence.



A complication of hæmatocele and hæmatoma, with cellulitis, suppuration and septicæmia, is common, hence it is proper to remove the *debris* as early as practicable. Delays are dangerous in such morbid states. While operators of reputation declare against incising a retro-uterine hæmatoma, on the ground that an arrested bleeding may be aroused, I have no sympathy with such a course. While I would be conservative, I can not justify a shifty course which is about sure to end in death. There is a time when it is conservative to be heroic. In the event of a large peri-uterine hæmatoma it is conservative to open the Douglas *cul-de-sac*, or to execute laparotomy. And in the event of extra-uterine gestation the abdominal section is about the only rational escape from a dilemma. The idea that a suppressed hemorrhage might be provoked afresh is a bug-bear. Turn out the coagula,—make a bold effort to save a patient in imminent peril. Styptics and tampons are to be utilized when the hemorrhage is severe or threatening, but are not to be employed without conditions favor the resource. In a case of mine which was quite hemorrhagic I employed pressure upon the abdominal aorta through the walls of the belly. The compressor slackened the flow of blood. Styptics could not be employed inside the abdomen, but might be utilized in an ischeal space left after the evacuation of a large hæmatoma. However, a tampon in the vagina and rectum would be more reliable hæmostatics.

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### PELVIC PERITONITIS AND CELLULITIS.

In a case of pelvic cellulitis there is likely to be, through sympathy of continuity, a degree of peritonitis, as pleurisy and pneumonia exist through proximate anatomical relation. The pathological notion has prevailed that there can not be a localized peritoneal inflammation,—that the disease once started must extend, there being no barrier to block its course. But, reasoning from analogy, it may be seen that a hernial sac may become gangrenous in strangulated hernia, yet there be no general peritonitis. Again, there may be pelvic cellulitis without local or general peritonitis; but cellular inflammation in proximity with peritoneal structure is liable to impress the adjacent tissue.

It is abundantly demonstrated that there may exist at the same time and in the same subject acute inflammation of the



uterus, ovaries, salpingian canals, and their peritoneal envelopes; and whatever cellular or connective tissue comes within the range of these organs would become implicated in the inflammatory action.

The *causes* of pelvic peritonitis, and of viscera within the immediate region, are both special and general—mediate and remote. Abortion has been the commonest provocation as far as my observation has extended. Then I may mention gonorrhœa, and traumatic states. The worrying effects of pessaries are not uncommon provocatives of pelvic cellulitis. The meddlesome and bungling use of the uterine sound might be followed by metritis, peritonitis, and inflammation of proximate structures with cellulitis and suppurative lesions.

A suddenly suppressed menstruation has been followed by pelvic engorgement, metritis, peri-metritis, and suppurative cellulitis, and regional abscesses. Retained menstrual exudates may become septic, and prove the cause of dangerous inflammations, involving proximate viscera and connective tissues.

Gonorrhœa is often the cause of such a profound shock to the pelvic organs, and of such a high grade of inflammation that abscesses of the ovaries, salpingian ducts, and broad ligaments develop. This constitutes a grave pathological state, with danger of such physical changes that sterility is a sequence. There may ensue salpingian infarction, pyo-salpinx, abscess of the ovaries, or of the broad ligaments, and suppurative cellulitis in the vicinity of the inflamed viscera. There could not help being regional peritonitis, and vesical troubles.

The *subjective* signs of pelvic peritonitis and cellulitis are pain, prostration, fever and general restlessness, with pelvic activity almost suppressed. There would likely be constipation, vesical distress, and aching lower limbs. The difficulty might be ushered in with a chill, and rigors be experienced when supuration threatened.

The *objective* symptoms are fullness and tenderness of the hypogastrium, and a congested state of both internal and external genitalia. The patient will object to vaginal exploration and express the wish that she be handled very gently. She draws up the limb to relax abdominal muscles; and rests mostly on the back. A digital examination of the vagina reveals intense heat, and swelling, with pulsation in the fornices. The uterus seems fixed as if in a cast,—the pelvic viscera are immobile. There is a fullness behind the uterus, and a peculiarly



acute tenderness on one side of the womb—on the side most profoundly impressed, if one be more highly inflamed than the other. A bulging of the Douglas *cul-de-sac* comes from the accumulation of serum in that pouch, and from infiltrations in the connective tissue. Through tenderness the abdominal muscles are stiffened and immobile. To conduct an examination satisfactorily an anæsthetic should be administered.

TREATMENT.—The management of pelvic cellulitis, with or without pronounced peritonitis, consists in tiding the patient over critical conditions in the progress of the disease. If the pulse be quick, the respiration rapid, and the temperature high, relief should be sought in the evacuation of pent-up fluids. The peritoneo-vaginal septum is to be incised to give exit to serum, to lessen the pressure on every side; and if purulency be discovered, the pus should be evacuated. If a purulent collection cannot be reached a spontaneous discharge may occur through the rectum, vagina, or bladder. However, the fortuitous cicatrization may be followed by sterility and malpositions of the uterus. An adventitious band is most likely to have its distorting character changed by time. An ante-flexed uterus is liable to a continual distortion, if inflammatory exudates become cicatricial. Even a surgical operation promises little toward relief.

If it be judicious to wait upon an issue, anti-thermics are to be employed during the periods, and the best nursing enforced. Hot applications to the hypogastrium are in order, and cocaine in the vagina. Turpentine stupes to the abdomen are useful, and a poultice would not be out of place. A hot fomentation of hops or other herbs would prove comforting and probably curative. Dry heat in the way of hot plates, is to be commended; one is heated while another is doing duty. The plates should be changed every hour or two. An anodyne enema is useful, cocaine constituting the quieting agent. Antipyrine is a good antithermic; and the agent exercises some anodyne power. The hypodermic injection of morphia will do to help a patient through a restless night, and sulfonal might enforce sleep.

In the event of constipation a cathartic is not to be administered, but broken doses of sulphate of magnesia. The agent invites dejections, and favors urinary secretions and vesical evacuations. Sulphate of magnesia is a saline cathartic, but it need not always be used as such. As a cooling kidney medicine the agent has no equal; and in a heated state of the bladder—



in vesical irritability—in cystitis—it has no superior as a curer and comforter.

Purulent cavities should be cleansed and drained, and too much importance should not be placed on the presence of antiseptics. A solution of bichloride of mercury will not restore to sweetness a purulent cavity,—there must be flushings and drainage. Vital energy is the best restorative agency. A healing surface will enforce asepsis.

A patient in a state of convalescence should have a nutritious diet, and tonics that will not create fever. The only ferric preparation of the kind is “acid solution of iron”—dose, two drops in water every three or four hours. Thirst may be assuaged with cold tea or ginger ale,—or with filtered lemonade.

Some cases of pelvic cellulitis are so tedious and devitalizing that “bedsores” form on the rump, the gangrenous sloughs depending upon enfeebled circulation, local paresis, and impaired nutrition. As soon as purple spots appear over the sacro-ischial regions, the worried skin should be dressed twice a day with “juniper pomade,” and pressure transferred to other spots by means of cushions. No more comfortable cushion can be made than a good sized ring of cotton-wool, the textile being refreshed every day.

Hot vaginal douches are not to be neglected in the management of pelvic cellulitis. The syringe should be a bulb worker, or a siphon current is to be utilized.

Pelvic cellulitis springing from ruptured perinæum, tents in the canal of the cervix, and injuries in the coccygeal, ischial, and perinæal regions, is to be managed conservatively until operative interferences be called for. Antithermics, antiseptics and douches take the lead till a purulent cavity be in need of incision. Then the quicker and the better evacuation be performed the safer will be the patient. In cases of doubt as to the location or existence of a purulent collection, the exploring needle may be used to advantage in deciding a question. I have employed an explorer with the utmost satisfaction when pus has been deeply incarcerated.

Attempts have been made to differentiate the signs of pelvic peritonitis and pelvic cellulitis, but not very clear distinctions have been drawn. It is thought that in peritonitis the disturbance is peri-uterine, while in cellulitis the inflammatory disturbance is restricted to one of the two sides;—that in pelvic peritonitis both limbs are drawn up while only one is flexed in cellulitis, but in practice I could not sustain the differ-



entiation. If the cellulitis be found at a considerable distance from the peritoneum, as when in the ischio-rectal region, the distinction could be easily drawn. It has been observed that abscesses in the vicinity of the rectum are apt to degenerate into fistulæ. However, if the purulent cavities be well drained and the pyogenic parietes be swabbed with a saturated solution of salicylic acid, the healing process may begin at the bottom, and complete repair occur.

Purulent collections in any part of the pelvis are not apt to vanish upon spontaneous or instrumental evacuation. There continues a suppurative inclination, which in some cases lasts for months and even years. A purulent paroxysm so to speak, manifests itself occasionally, and without an appreciable provocation. A woman in my practice had pelvic cellulitis, with local peritonitis; and at length a purulent collection burst forth into the rectum. The difficulty was diagnosticated as abscess of the broad ligament. At length the patient attained fairly good health, but two or three times a year she would be down with rigors and the evidence of a purulent collection in the pelvis. After a few days suffering a discharge of pus would take place by the old channel, and relief at once followed. After some years of occasional suffering in this way she became continuously well. I was acquainted with a similar history in another patient.



## SECTION XII.

URINARY DISEASES OF THE FEMALE.

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While the female urether is short, large in calibre, and dilatable, it is often a source of trouble in normal micturition. There will be smarting as the urine passes, or twinging sensations when urinary acts begin and end. It is thought that the carrying of urine too long when it be not convenient to void it, has something to do with dysuria. Then, again, constipation, retention of gas in the rectum, and catamenial returns, may have a disturbing influence upon the bladder.

The reflexes of pregnancy so worry the bladder that a woman may have no peace night or day till the womb rises above the pelvic brim. Not infrequently vesical irritability comes from a chemical alteration in the nephritic excretion. If the stomach be disordered in digestive action the kidneys sympathize with stomachic derangement, and throw off acid urine. The eating of acid fruits, tingling condiments; and the drinking of strong tea and coffee, are often the cause of chemical changes in the urine which render the bladder irritable, and establish cystitis.

The existence of vermes in the bladder, and the presence of calculi, are common causes of cystic worries in young females.

The pelvic viscera are so intimately associated anatomically that fissure of the anus and inflammation of the vagina may develop cystitis. I have alluded to this sympathy of morbid activities in another place; and purposely call fresh attention to the subject. A woman, in describing her symptoms, is apt to mislead her physician. She may not like to talk about constipation, hæmorrhoids, ineffectual efforts at stool, vaginismus, etc., but is inclined to adhere to some form of disease she thinks she knows something about. The gynaecologist understands this, and hence subjects his patient to a rigid cross examination.

The urethra is liable to vascular excrescences and to polypoid growths considerably inward from the meatus urinarius. Such morbid developments are apt to be distressing, especially



during urination. A vascular growth at the urethral outlet may be successfully attacked with the following caustic:

R Cosmoline, ʒi.  
Pulverized salicylic acid,  
Chloride zinc,  
Resorcin, aa. grs. xx. M.

Use with a camel's hair brush once a day. Within a few days the vascular turgescence will subside, and a healing state set in.

A polypus of the urethra is to be treated in the same way if it be within reach, as it may be made to be if dilators are employed. Pressure forceps may be made to seize a urethral polypus and drag it from its matrix, care being exercised that the urinary conduit be not lacerated in the effort. Although the female urethra be dilatable and elastic, its structure is easily torn.

### CYSTITIS.

One of the most annoying and persistent troubles a woman has to endure is irritability of the bladder, and cystitis. The difficulty, whatever its cause, is apt to continue after the provocation is removed. If a calculus be the source of cystic worry the bladder will not always become normal after the stone has been removed.

Displacement of the womb, especially procedencia, retro-flexion, and anteversion, are common provocatives of painful and difficult micturition, hence relief hinges upon a restoration of the uterus to normal positions. The use of properly applied pessaries has relieved irritability of the bladder at once; and on the other hand, I have known pessaries to produce cystitis. Much depends upon the kind of appliance; and upon its fitness in every respect. As I have said before, the ordinary practitioner tries to find a proper implement in a restricted stock. Sometimes a dozen trials have to be made before a perfect adaptation of means to ends is accomplished. It requires a large stock of trusses to fit all kinds of patients.

Retroversion of the gravid uterus is apt to produce both difficult and painful micturition; and, as a rule, the distress has to be endured until a further advance of the pregnant state carry the uterus away from the neck of the bladder.

Enlargement of the uterus from any cause—from cancerous enlargement, from myomatous hypertrophy, from physiological hypertrophy (pregnancy), or from any other evolution in the womb's structure—is likely to produce vesical irritability.



In cystocele (prolapsion of the bladder), and in cancer of the urinary track, there is likely to be cystitis. A hæmatocele in the pelvis is liable to interfere with micturition.

Specific urethritis—gonorrhœa—is to be suspected if the cystitis be acute and a purulent discharge be an accompaniment. An examination may not determine whether gonorrhœa be present or not, but if there be frequent calls to urinate and the flow be attended with burning sensations, the signs of a specific urethritis are marked, if not decided. Swelling of the internal labia, with pus matting the pubic hairs, is more distinctive; then if the genitalia be sensitive to a distressing extent, and painful to the touch, the evidence of gonorrhœa is convincing. However, cases are rare indeed where a physician in court would be willing to swear that a woman he had been called upon to examine had or had not the clap.

A gonorrhœal inflammation belongs to the vagina, yet extends by sympathy of continuity to the urethra, producing smarting and burning during micturition.

In the treatment of gonorrhœa in the female it is not necessary that she be informed in regard to the nature of her malady. If she have obtained the disease from a husband whose waywardness has brought sickness into the family it is the part of wisdom and discretion to keep the innocent wife from knowing the cause of her suffering. In fact she can be cured quicker if she do not know that she has been imposed upon. She can take sulphate of magnesia for the urethral irritability, and vaginal injections of sulphate of zinc solutions, to lessen the purulent discharge from the genitalia. An ointment of vaseline, boracic acid, and cocaine,—ten grains each of the latter to an ounce of the former,—may be smeared upon the mucous surface of the vagina twice a day, a rag on the finger being used as a medium of application. If a too strong astringent be employed as a vaginal injection, a painful state of the ovaries and salpingitis will be a secondary sequence.

A state of "irritable bladder" is a common disease to treat, yet the cause in some cases is very obscure. I have been solicited oftener by practitioners in regard to the best method of relieving vesical irritability in women than for any other morbid condition. Of course I enjoin an inquiry into the cause, sending explorers into the bladder, and examining organs adjacent to the urinary receptacle. Hysteria may be a cause, hence asafœtida may prove the best remedy; lack of cleanliness may be enumerated as a cause,—and the nature of the cure suggest



itself. Intestinal worms may worry the urinary passages; and eczema of the vulva is a source of genito-urinary irritation, with frequent micturition. The use of juniper pomade will cure the eczematous state, and indirectly restrain the inclination to urinate frequently.

Implacable irritability of the bladder is to be tentative in treatment, the first test being instrumental dilatation of the urethra. Graded bougies may be experimental dilators. The entire urethra should be subjected to the dilating force. Of course the sphincter vesicæ could not be unduly stretched without harming its function, perhaps establishing incontinence. However, with forceps I have extracted a calculus an inch in its short diameter through the female urethra. I took a stone as large as a dove's egg from the bladder of a girl five years old. In neither case was the urethra lacerated or otherwise damaged. The girl dribbled her urine for a week or so, and then held it under entire control.

Vascular growths—papillomata—are to be attacked with a curette, or swabbed with a mop that will enter the urethra, an escharotic being utilized to attack the bleeding fungus. Glycerine may have mixed with it equal parts of salicylic acid, chloride of zinc, and resorcin—ten grains of each to an ounce of the solvent. This may be freely mopped upon fungi springing from the lining of the bladder. An application may be repeated every four or five days, until the vascular excrescences disappear.

The inside of the bladder may be illuminated with the incandescent light of an electrical apparatus, a speculum being employed to dilate the urethra. The apparatus is not yet in common use, but promises to be practical, and convenient to be utilized. The focused light of a kerosene flame has been employed as an illuminator, the condensed rays being sent through a bright speculum. In closing the subject I would say that a curette is a dangerous instrument to use inside the bladder. The coats of the viscus become so thin and friable that the implement will perforate the vesical parietes.

Irrigation of an irritable bladder has done more good than all other agencies combined. A fountain syringe is the best implement to be utilized to maintain a continuous douche. The water should be warm, and used a half hour at a time.

A solution of cocaine thrown into the bladder every eight hours will allay vesical irritation. An objection to the effects



of the drug is that it lessens the ability to urinate quickly when the desire to evacuate the bladder arises.

It has been advised to establish a vesico-vaginal fistula, to take away the necessity for urinating. In the worst cases the scheme is to be commended. It is easy enough to cure the fistula after the vesical irritation has subsided. In the male it is common to turn the urine into the rectum to avoid the strain and worry of urinating.

A thousand remedies are commended for the relief of vesical irritability. Most of them are classed as diuretics, yet a diuretic action is just what should be avoided. The vesical irritation extends to the kidneys, so that too much urine is secreted. It seems strange, then, that the average writer upon therapeutics should recommend vegetable diuretics for the relief of vesical irritability and cystitis. Better commend astringents, such as barks which embrace tannin. The ordinary *Pinus Canadensis*, such as is largely used for tanning leather, is a valuable medicine in the treatment of vesical irritation. The medicine acts not as a diuretic, but as an astringent.

"Mucilaginous diuretics," so called, are utterly useless. The mucilage is digested as food, and the diuretic properties, if there be any, are valueless.

The sulphate of magnesia, in broken doses, is quite potent in the relief of cystitis. The patient should not know that she is taking Epsom salts lest she be disgusted with the commonness of the medication. Imported Vichy waters exert a soothing influence upon worried urinary surfaces. They allay irritability of the kidneys and bladder, and do not increase the flow of urine. They do best when they diminish the urinary excretion. No doubt there are thousands of springs in the United States, whose waters are curative of many urinary maladies. The trouble is that the remedial qualities have not been classified so that a patient with a given disease may know what medicinal water to drink. In Europe it is known where to send one patient for a "water cure," and where another with a varying disease should go. If the therapia of a mineral water be not known, how could a cure be expected, except on the principle of firing into the bushes, and then looking for game shot at random?

To avoid micturition I have instructed a woman in the use of the velvet-eyed catheter, to get rid of the straining effort. In some cases I have thus secured excellent results. My self-retaining catheter, and a rubber tube connecting it with a bottle



strapped to the thigh, constitute an apparatus which will keep the bladder empty, and obviate efforts at micturition.

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### RETENTION OF URINE.

Parturition, hysterectomy and severe surgical operations upon the pelvic organs, are apt to be followed by inability to void the urine voluntarily. Hysteria is another complication which causes retention of urine; and assafoetida may not prove a cure. A physician once asked me to go with him to a hysterical woman who had not passed water for two days, so that he was afraid the bladder might burst. I took catheters and chloroform and rode with the doctor to the home of the patient, but when we arrived the urine, a quart or more, had been voluntarily voided. The thought that she was to be anæsthetized, and then subjected to the action of a catheter, had restored control to her nervous system. This is not the only case of the kind I have been cognizant of.

Exposure is not necessary in the use of a catheter, yet if it be easier and better to catheterize a patient after the meatus has been brought into view, there is no good reason why the exposure should not be made. In the event of great swelling of the vulva it may be difficult to find the urinary meatus. The labia may be so sensitive that no manipulation is allowable. I have had to administer an anæsthetic to execute catheterism. Heat upon the hypogastrium favors a dulled ability to urinate. A hot plate upon the pubes will sometimes act marvelously favorably.

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### ENURESIS.

Incontinence of urine is a not an uncommon affection. Sometimes it continues till after marriage. I had a case to treat in a very robust girl of sixteen. I gave her thuja in small doses, and effected a cure. If intestinal vermes be the cause of enuresis, vermifuges should be administered, such as sulphur and santonine. A suppository of cocaine pushed into the vagina upon going to bed is an aid to the exercise of restraint. The bladder is irritable when quite full, so that sphincter control is overcome by expulsive efforts of an involuntary nature. The benumbing effect of cocaine deadens expulsive throes. The use of sulfonal also helps a patient to retain the urine till the hour of awakening. Electricity rarely does any good, though



the agent is claimed to have cured enuresis. I have little faith in the agency's curative properties. A compress held with an elastic belt against the vulva has helped a patient to retain the urine until it could be voided in the normal way.

Suppression of the urine differs from retention. The elderly and paralytics may have an arrest of the urinary secretion or excretion, so that no water comes into the bladder. In such a condition the catheter gives no relief. There may be a desire to urinate that springs from poisoned blood and a worried nervous system, yet there is no urine to be voided. Such cases inevitably die. There is no way to stimulate the secretory function. Suppression of the urine is a nephritic and not a vesical difficulty.

Incontinence of urine in paralytics may be made endurable by the use of rubber urinals; yet it is so much work to keep the implements clean that they are far from satisfactory. The intolerable odor of urine is inseparable from the person wearing a urinal.

The incontinence of vesico-vaginal fistula is incurable except through a surgical operation for the permanent closure of the aperture.

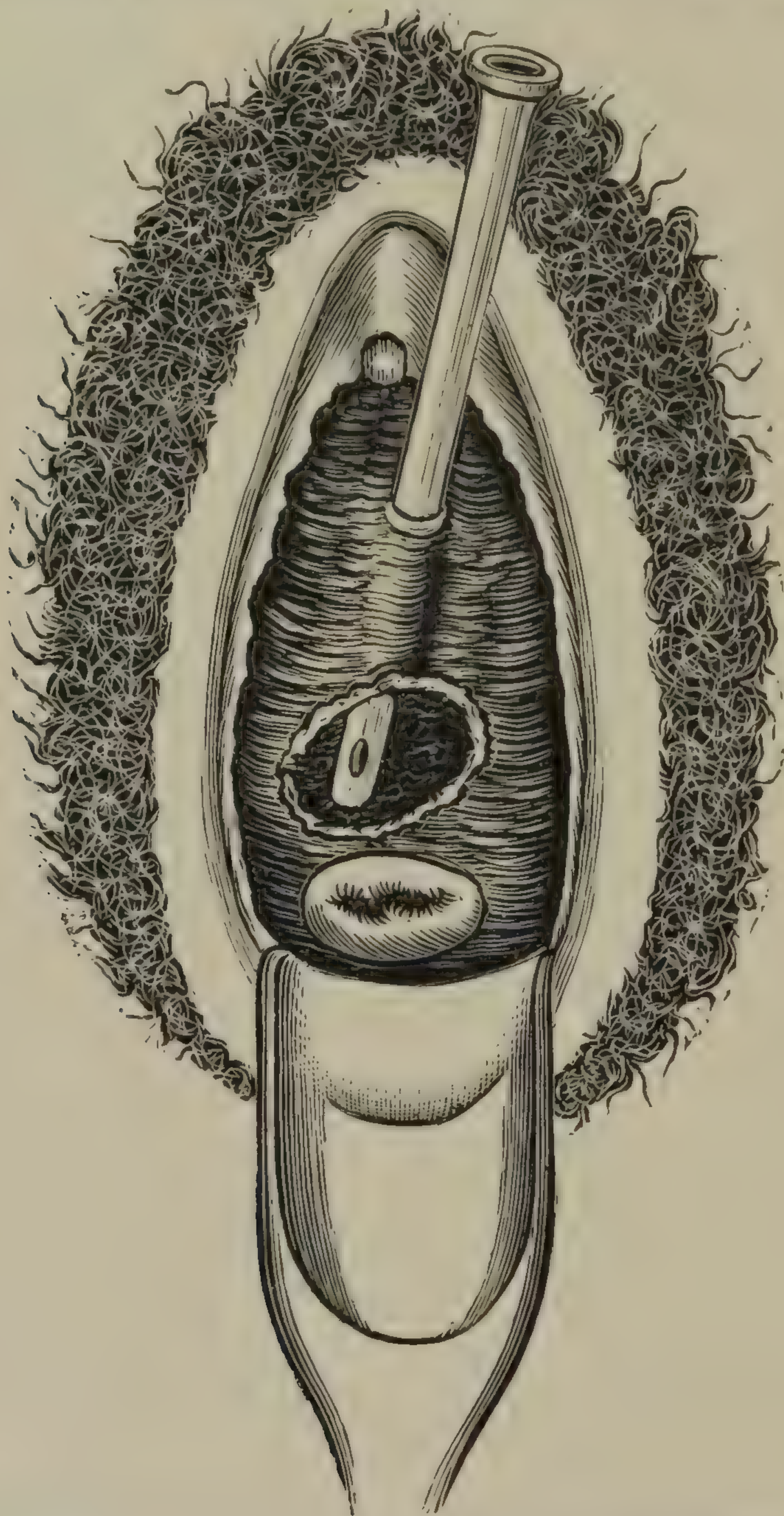
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### VESICO-VAGINAL FISTULA.

One of the most unfortunate accidents that can happen to a lying-in woman, is to have the vesico-vaginal septum slough a day or two after delivery, leaving a chasm for the urine to dribble through incontinently. Perhaps the nurse is the first to discover the involuntary flow, the bed being constantly wet, and the patient having no desire to urinate. Sometimes the dribble continues several days before the real defect is ascertained. The want of control over the urine may be assigned to ordinary incontinence, both nurse and doctor being misled. However, a physician on the alert for mishaps in obstetrics will soon discover whether the urine passes through the urethra or through the vagina; and if through the latter he will put a catheter, grooved director, or sound, into the bladder, and a finger in the vagina, and then by manipulations learn where the rent is and how large it may be. The exploration may reveal whether the aperture is the result of a tear or a slough. A laceration is generally begun in the uterine cervix and quickly and readily extends to the vesico-vaginal septum. Such a fissure would constitute a utero-vesico-vaginal fistula. The open-



ing attendant upon a slough may embrace a part of the urethra and vary greatly in area—it may be the size to barely admit a common probe, or embrace a large part of the floor of the bladder. In the majority of cases the chasm will let the finger pass through it. If the fortuitous hole be not large, and exist near the urethra, a certain quantity of urine can be retained



A female catheter explores the urethra, bladder, and vesico-vaginal fistula, while a blade of Sims' speculum holds back the perinæum.

while the patient lies upon her back. In such an event the woman is puzzled to know what may be the existing defect. A professional examination alone can determine the nature of the lesion.



A laceration is followed by incontinence of urine at once, while a slough does not come away for two or three days after confinement. A segment of the bladder has been pinched or compressed until vital integrity is lost. The dead or dying structure maintains its place for a day or two, and then falls away,—the textural loss establishing the false passage under consideration. The slough alluded to may be the result of a pinch on the part of obstetric forceps, yet the cause in almost every case is undue pressure imparted by the child's head as the pubic arch of the mother is infringed upon. In many instances the bladder has not been recently evacuated when the child's head enters the superior strait. This should be a hint for obstetricians to be sure the bladder is empty when that viscus is in danger of severe compression.

The first of three diagrams devised to illustrate important features in the diagnosis and treatment of vesico-vaginal fistula has been introduced. A Sim's duck-billed speculum dilates the vulva and bears heavily upon the posterior commissure. The blade of the instrument extends to the vicinity of the cervix uteri and displays the mouth or the womb. The catheter carried into the urethra presses the deeper recesses of the vagina into view and displays the adventitious aperture. The picture exaggerates clearness of view for the purpose of giving scope to illustration. In the majority of cases it is not essential that the uterine cervix be in view while exploration is going on, though it should be examined before the diagnostic procedure is over.

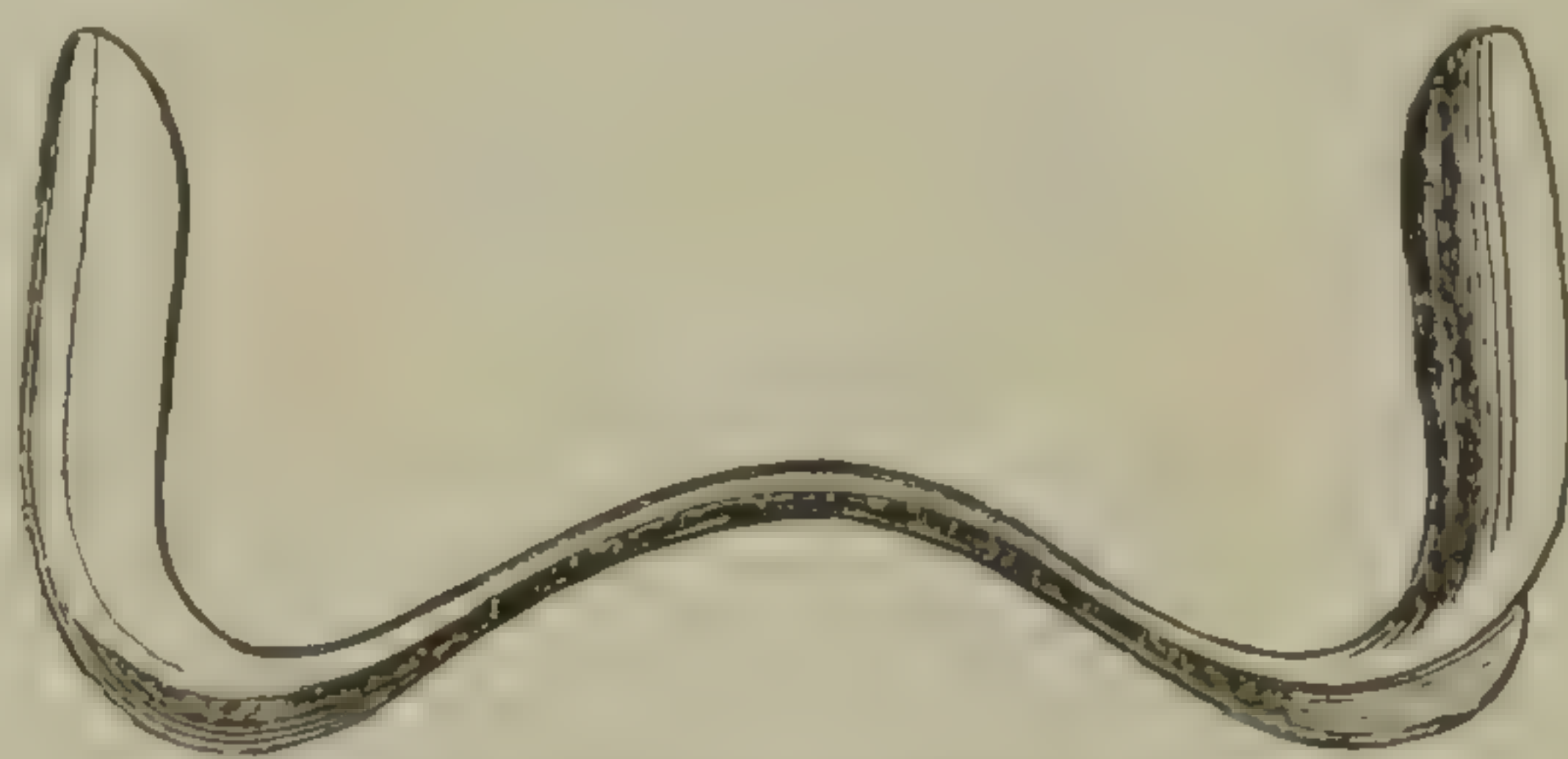
A patient who has suffered months and years with a vesico-vaginal fistula will have excoriated integument covering the perinæum and inner aspects of the thighs. This arises from the irritating character of the urine that is always extending to those parts. Not infrequently the salts of urine concrete in the folds of the vagina and vicinal structures. This might indicate that diuretics would be useful. Sometimes adventitious bands of cicatricial tissue occlude the vagina and become an obstacle to operative procedures.

The urinous odor inseparable from a woman inflicted with vesico-vaginal fistula is very offensive. The bed, the room, and even the house of the sufferer become contaminated with the disgusting fætor. Phosphatic concretions in the borders of the fistulous aperture make the tissues exceedingly sensitive. Such salts may be dissolved by injections of solutions of boracic acid. In some instances borate of soda in solution acts as a



solvent. Urinary deposits are sometimes alkaline, and at others they may be acid, so that experiment alone determines what kind of a wash effects the purpose desired.

It is appalling to think of the numbers of the human race, who, afflicted with urinary fistula, have been compelled to go through life uncured. A quarter of a century ago, the late Dr. Marion Sims experimented on a couple of negresses who were afflicted with urinary fistula, until a curative method was invented. Other surgeons had preceded him in attempts to close fistulous chasms in the floor of the female bladder, yet did not make an entire success of their efforts. The duck-billed speculum and retractor of the perineum proved invaluable in



Sims' duck-billed Speculum.

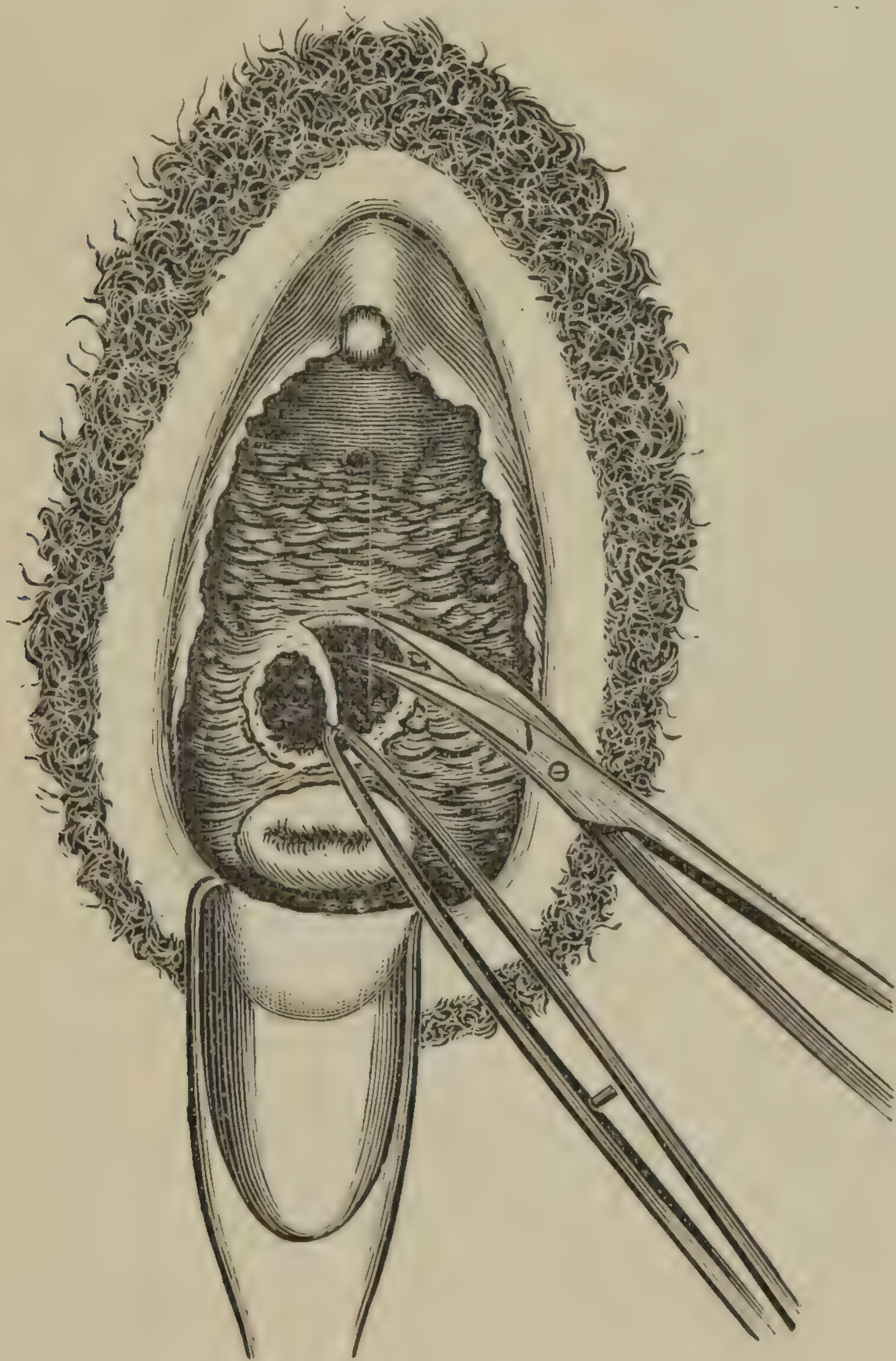
exposing the borders of the fistula; elongated tenacula, forceps, knives, and scissors, were employed to vivify or freshen the edges of the aperture; and silver wire utilized for sutures. Perforated shot were made to take the place of knots, but they have gone out of use. In fact very little remains of the original *armamentarium* of Dr. Sims, yet the method of cure is as truly his invention as it would be if all his implements were in present use.

The time set for an operation to close a vesico-vaginal fistula should be a few days succeeding a menstrual epoch, in order that another flow may not occur during the healing process. The bowels should be well evacuated the night preceding the day on which the operative procedure is to take place. About ten o'clock in the morning is when a good light can be depended on. A dark day is not fit for an operation, in the execution of which so much devolves upon an abundance of light. A coal-oil lamp that has a good reflector, affords a means of seeing in a room poorly lighted. An electric light is employed when it can be utilized for illuminating surgical procedures.

The patient, clad in easily fitting garments, with her legs encased in drawers, is to rest on a table that is covered with an old spread and rubber cloth. The flexed attitude on the left side is the best. The position as regards the window or source of light, should be that which will illumine the dilated



vagina. Sometimes a portion of the bladder protrudes into the chasm and presents a bright red mass that a novice does not comprehend. However, once understood, the complication need not embarrass the operator. He clears the aperture by using a lever-like instrument in the urethra. This pries the prolapsed mass back into place. Occasionally the borders of the



rent, fungous in appearance, turn into the vagina, and tend to obscure the true nature of the lesion. A feature of the fungous plug is that it easily bleeds upon being touched.

Assistants are assigned their places, and instructed in parts they are to perform. One is to attend to anæsthesia if an anæsthetic be administered. Some patients prefer to do without



ether or chloroform. A strong and reliable person is needed to manipulate the ducked-billed speculum. The blade of the instrument is to be placed by the operator, and the assistant is to hold it as directed. A seemingly insignificant change of poise in the handle may obscure a satisfactory view. A movement on the part of the patient will do the same. The operator sits upon a stool, and has instruments for immediate use in a tray beside him. A pan of warm water is within reach. In this are a half dozen sponges tied firmly to the ends of sticks a foot long. These are used to mop parts undergoing the freshening or vivifying process. Blood quickly obscures the tissues to be denuded with knife or scissors. Slender forceps with toothed extremities are better than hooks to hold the border of a fistula that is being pared; and long and curved scissors are preferable to a knife in making raw the surfaces to be joined. There is usually structure enough and to spare, therefore a thick and firm paring is to be taken from the cicatrized border of the rent. If cicatricial tissue be left, a failure may be expected. A mere scarification will not answer; a strip of flesh must be removed from the entire border. If a speck of smooth and uncut structure be left in the line of expected union, the operation will not be a success. The entire thickness of the vesico-vaginal septum must be made freshly traumatic.

In the freshening process a female catheter or grooved director is kept in the urethra, and ready to press any part of the floor of the bladder into view. Occasionally the bleeding will be so brisk where a vascular point is cut, that the freshening procedure is delayed a few minutes while moppings with the mounted sponges arrest the hemorrhage.

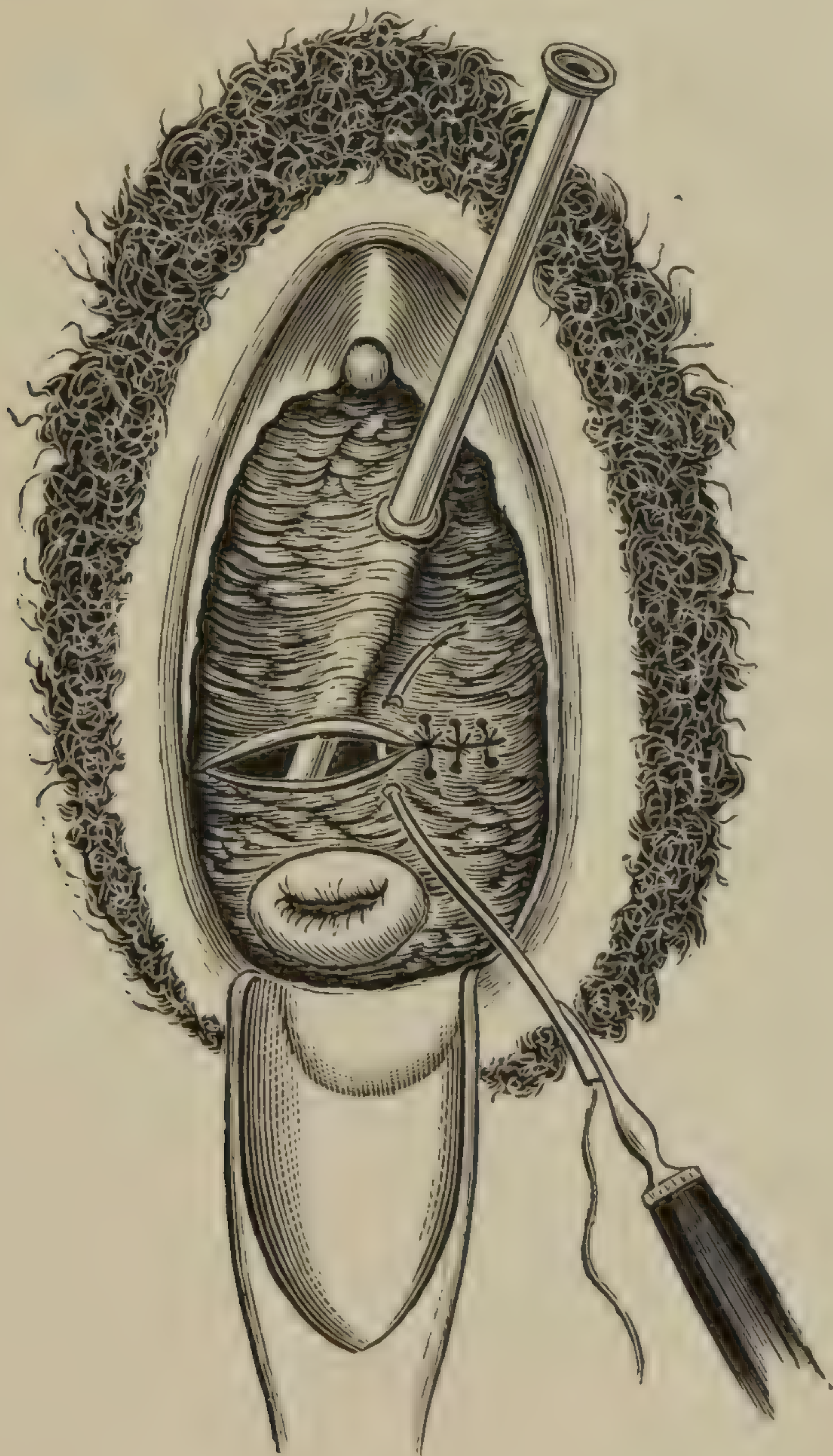
The right and left curved scissors are the most convenient for taking off the paring; and several pairs of varying sizes and shapes should be at command. If a continuous strip can be removed without breakage or division the evidence of traumatic continuity is assured.

In the event of utero-vesico-vaginal fistula the laceration involves the neck of the uterus, hence the notch or fissure in the womb must be freshened as efficiently as other parts of the chasm. Various shaped knife-blades have been employed to denude the calloused surfaces; yet none of them execute with entire satisfaction. Generally it is best to seize the cervix with volsella forceps and drag it into view, or where knife and scissors can be used easily in the denuding process. A desideratum is to so freshen uterine tissue and that of the bladder



and vagina as to make readily opposable surfaces which can be brought in contact and held with sutures. Much ingenuity is required to adjust difficult cases.

After the borders of a vesico-vaginal fistula have been freshened, it is well to allow a few minutes to elapse before sutures are inserted. This interval gives time for all bleeding to cease and for the patient to recover from anæsthesia, or to rest if an



anæsthetic has not been administered. In the mean time a dozen silver strands a foot long, are cut and made ready for use. The implement employed to carry the metallic sutures through the borders of the chasm is a canulated needle; such a one is represented in the third diagram. After the needle is past a suture of virgin silver, very attenuated, is made to enter the



canula and to emerge from the hollow in the point. The protruding suture is then seized and held with a pair of forceps while the needle is withdrawn. The removal of the canulated suture bearer leaves the wire in its place and ready for tightening and fastening. It may be mentioned here that an elliptical wound should be made of the fistula while the freshening process is going on. This form makes a better seam. The first suture should be at one angle of the wound, and the next a quarter of an inch or less from it, and so on till the chasm is closed. It is well to keep a catheter in the urethra while the sutures are going into place. Each suture is to be finished before another is inserted. The adjusting is accomplished by taking the two ends of the suture between the thumb and fingers, and drawing snugly while a twist is made in them; then other twists are made till a knot or fastening is secured. The waste ends are not clipped away at once, but are utilized to pull upon while the needle is making way for the next suture. As soon as that is ready for the tightening process, the superfluous ends of the preceding suture are cut away with scissors. And so goes the suturing process till the rent is closed. The point of the needle is to be so guided as to take deep stitches, yet the mucous membrane of the bladder is not transfixed. The plan of introducing sutures just described is executed in half the time that is necessary to insert curved needles from border to border. The method of inserting all the wires before fastening any of them is perplexing. The ends will tangle. The twisting of sutures with forceps is a tedious way of fastening the knots. Fingers are much more nimble. The perforated shot method of making knots is entirely out of use. The shots would occasionally slip on the fine, smooth wire, though thoroughly flattened.

After the patient is through with the operative procedure, she is placed comfortably in bed, and a self-retaining catheter is introduced into the bladder. A pewter instrument, sigmoid in shape, will do. It is well to have two catheters, so that one may be cleansed while the other is in use. A small earthen vessel like a soap-dish, is to be utilized as a urinal. No opium is to be given to restrain action of the bowels, but flatus and feces are to be voided when there is a call for a passage. The vagina should be washed every day by the use of a syringe. On the tenth, eleventh, or twelfth day, the sutures are to be cut one by one, with scissors, and removed with forceps. If the fistula be closed, all has gone well, but if an aperture the size of a



knitting needle be discovered, another operation is needed to occlude it. And it is about as difficult to close a small aperture as it is to operate on a large one. If an operation prove a failure, the catheter ceases to conduct much urine on the sixth or seventh day, and the bed begins to get wet. After it be ascertained that a gap is in the seam, it is useless to keep the catheter in the urethra, and the patient in bed. The sutures should be snipped, and the sufferer made as comfortable as possible.



Sims' self-retaining Catheter.

Failures have occurred in the best hands. If the seam leak a drop of urine, the healing process seems to stop at that point. It will be realized, then, how essential it is to place the sutures close together—less than a quarter of an inch apart. If there be any strain on a suture, it will cut itself loose by ulceration, though it be virgin silver. When nearly or quite the entire base of the bladder is lost, there is apt to be some strain on the sutures: and if the fistula embrace a fissure in the uterine neck change of the womb's position may make traction upon some part of the seam.

In the event that the neck of the womb be held in a vesico-vaginal fistula through the formation of cicatricial bands, it may be impracticable to disengage it from its adventitious position. In two cases I have encountered such a state of things, and have freshened a furrow near the base of the uterine neck to meet the freshened border of the vesico-vaginal septum. It was not difficult to pass the sutures and make a good seam. This converted the vagina into a cul-de-sac, and made the woman menstruate through the bladder and urethra. In both cases the operations were successes, and no harm came to the womb, though the os opened into the bladder. Such an operation should be avoided if possible, yet when necessary it is to be performed.

In the event a woman come out of the obstetric bed with a lacerated perinæum, torn anus and rectum, and a vesico-vaginal fistula, the last mentioned defect should be remedied first. Then the rent in the bowel and the torn perinæum may be mended at one sitting.

In making explorations where the lesions are multiple, one Sims' speculum is not enough. A pair of retractors, such as



are used in the ligation of arteries, will do very well. A common spatula is valuable in pressing bulging parts out of the line of vision.

In one case all the above accidents, with total loss of the urethra, occurred to a primipara. I closed the vesico-vaginal fistula and constructed a urethra at one operation. The latter was made by sending an exploring needle through the soft tissues, which lay deeper than the urethra; the artificial canal was close to the pubic arch. The caliber of the passage was enlarged by the use of a trocar and bougies. The catheter left in the new urethra to drain the bladder, kept the passage from closing and helped to make its lining smooth. The operation was a decided success. Although no sphincter existed, the woman could retain two ounces of urine before it began to pass involuntarily. The new urethra was longer than the original, the external aperture being near the clitoris. I was surprised to learn that the urine could be retained so long; and that no inconvenience attended its passage.



Goodman's self-retaining female Catheter.

The lining of the canal was smooth, as if it had a normal mucous surface; and no scalding attended the emptying of the bladder. The act could not be denominated urination, for the woman had to take a forward (knee-chest) attitude to facilitate the flow. Contractions of the bladder contributed to expulsive efforts.

In the event that the base of the bladder is wholly lost by sloughing, and there be no hope of a cure, it may be well to consider the propriety of closing the ostium vaginæ to get rid of the intolerable incontinence. The operation is easy to execute, and the chief objection to it is that sexual capacity is destroyed, a choice of evils that most sufferers would not be long in deciding. It is easier to freshen the internal labia, and join the traumatic surfaces than to close a ruptured perinæum.

In regard to the management of a pin-hole aperture in the vesico-vaginal septum, I would say that it *may* be closed by the application of a red hot wire, yet many trials are usually needed to secure success. When the opening will admit a penholder it is best to make an elliptical chasm, in the freshening



process, and close the aperture with sutures. The opening is not the easier to close from the fact that it is small. An aperture of a needle's caliber may be difficult to discover in the folds and rugæ of the vaginal roof. Milk or a colored fluid may be thrown through the urethra into the bladder; then a leakage will disclose the point of escape.

The time for operating on a vesico-vaginal fistula is as soon as the lochial discharge has ceased, and the uterus has passed through involution. To wait for all vaginal soreness to subside would be putting an operation off indefinitely, for the urinary flow will keep up vaginal, vulval, and perinæal irritation.

It may be remarked, *en passant*, that the existence of a vesico-vaginal fistula has not prevented conception. However, the presence of urine in the vagina must prove preventive to some extent.

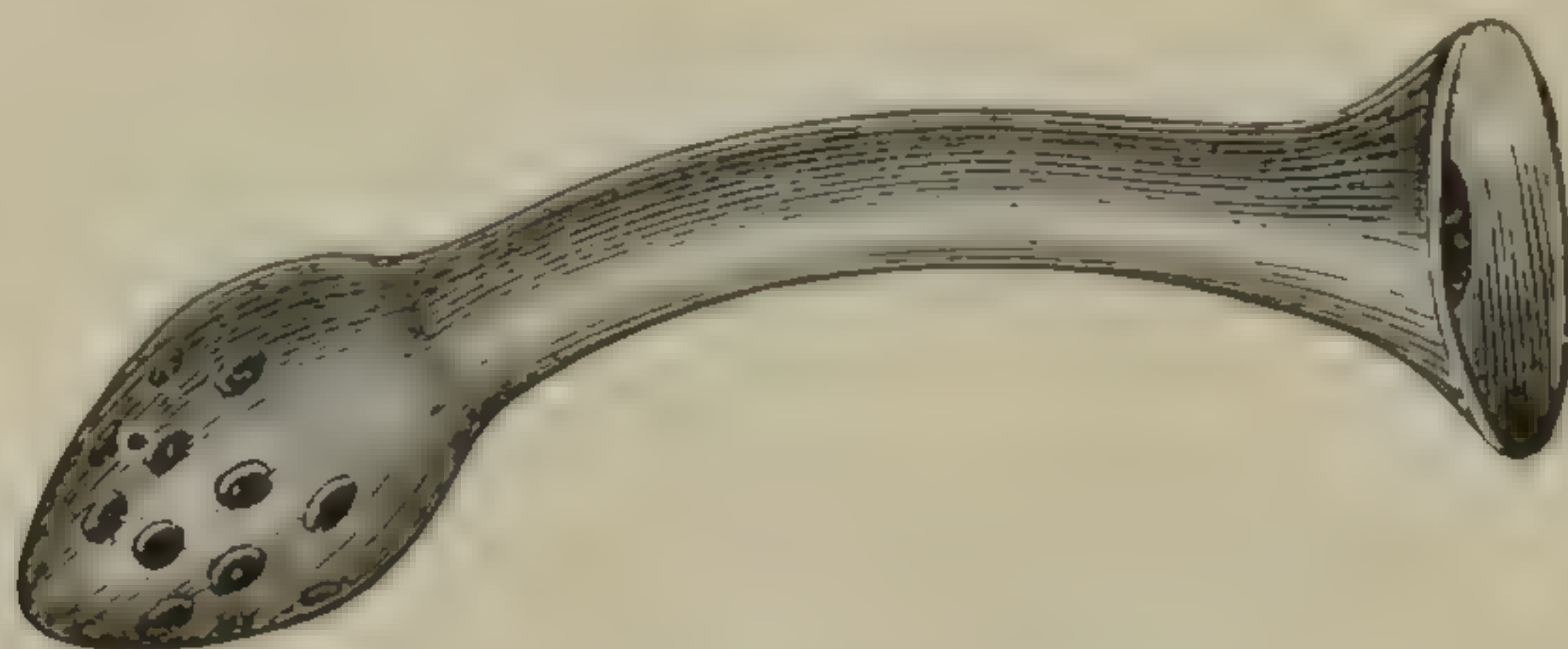
It has begun to be questioned whether the use of a self-retaining catheter is not more harmful than useful; the occasional use of a catheter is indispensable unless the patient get into the knee-elbow position to facilitate urinary evacuation. The earlier method of locking the bowels with opium is quite abandoned. A free feculent discharge the day before the surgical operation is desirable; and the diet of the patient for eight or ten days should be nutritious, yet not stuffing or distending to the intestines. In other words, corned beef and cabbage may be dispensed with. An enema of water may be employed occasionally to assist in fecal evacuation, and in the escape of flatus. It is idle to think a woman is to lie several days in one attitude, lest she disturb the joining of a vesico-vaginal fistula; she can change positions as often as she pleases.

In one of my cases where catheterism was left to an inexperienced nurse, the bladder became so distended that the closing seam was forced open. The assistant was not competent to insert a catheter, although she claimed to have had experience with the implement. This was in times when opium was given daily, and the patient not permitted to move or strain.

In another case of failure the sutures transfixed the vesical lining, and became loaded with urinary salts. However, the woman had been operated upon several times previously and by different surgeons. When I succeeded I pared away all indurated tissue, employed very fine wire for sutures, placed them near together, and did not allow the needle to pierce the vesical lining. The urine was drawn every two hours with a gum catheter, great care being exercised in the evacuative procedure.



In favorable cases the operation for closing vesico-vaginal fistula is attended with a high degree of success, but in general is not one in which the greatest assurance can be given. A seemingly insignificant accident may defeat a display of the best operative skill. Those surgeons who operate often possess advantages over a novice, yet a discreet operator may succeed the first time, and lay nothing to good luck. His implements must be of the right kind, or he will labor under great disadvantages. There is no part of the operation that can be left to accident, but every step must be patiently performed. "Hoping for the best will not help a blunderer."



Self-retaining Catheter.

My self-retaining female catheter was devised before that of Goodman, but he evidently had not seen mine. In shape they are much alike. Mine was constructed of silver at first, but afterwards of pewter. I had a case of urinary incontinence, and invented the implement as part of a urinal. A short piece of rubber tubing was utilized to conduct the urine to a glass flask or bottle lashed to the inside of the thigh. One end of the elastic tubing was stretched over the outer and flaring end of the metallic catheter, and the other hung loosely in the nozzle of the flask, bottle, or urinal. The apparatus should be well cleansed once a day. The metal catheter and the glass receptacle should be washed in boiling-hot water. The bit of rubber hose would be damaged by too great heat.

With four or five inches of the bladder-end of a male elastic catheter, and a piece of iron wire, a self-retaining catheter, *a la* Sims, can be quickly made, by giving the wire the needed curves before it is put into the gum tube. The wire enforces the curves, and does not interfere with the passage of urine. I have frequently used a self-retaining catheter in this way.

The Sims' catheter can only be used when the patient is in bed and on her back. My self-retaining catheter can be worn while the patient is walking about, if the rubber attachment and urinal be connected with it.



## RECTO- AND VESICO-VAGINAL FISTULA, WITH LOSS OF URETHRA.

A woman with a vesico-vaginal fistula is quite unfortunate, yet a patient with recto-vesico-vaginal fistula, and a loss of the urethra in addition, is in a much worse plight. I once treated a young married woman from Nebraska for such a complex difficulty, and practically cured her, though she could not retain the urine for over two hours at a time. In her case I closed the recto-vaginal and the vesico-vaginal fistula at one operation, and by a plastic operation restored a half inch of urethra. While she stood upright, after the operation, and when she laid upon her back, the urine was retained, but if she laid upon her side, or bent forward while standing or sitting, the urine flowed incontinently. The greatly-benefited patient promised to return and have the urethra elongated by another plastic operation, but she did not keep her word in that respect. Since I treated that patient I have had two others with loss of urethra, and another—a widow—with a terrible complication of pelvic injuries. There was utero-vesical and vesico-vaginal fistula, loss of urethra, and rupture of the perinæum and of the entire recto-vaginal septum. There was a complete *cloacum* of the excretory organs, with no hope of an utter cure. But to better the condition of this strangely unfortunate woman became a source of solicitude on my part. She appealed to me with assurance that I could do something for her if I would only try! After giving the situation days and days of study I advanced my plan for adoption or rejection on her part. It was to first close the recto-vaginal rent and perinæal fissure; then I was to execute episiorrhaphy—close the genital fissure or ostium vaginæ—converting the vagina into a bladder, and by means of an artificial recto-vaginal fistula, draining the urine into the rectum. The proposition was accepted, and I confidently undertook the complex operation. My assistance was not of the best order, but in a two hours' effort I freshened the scarred borders, and sutured them in strong apposition. I closed the rent in the recto-vaginal septum first, then brought into contact the sides of the perinæum. It was troublesome to keep the urine from the sutures, yet an attempt was made to do so. On the eleventh day the silver stitches were snipped and removed; and in a day or two the work was pronounced safe and sound, as far as it went.



After a period of rest, lasting several weeks, I entered upon the second part of the operative procedure. After the patient was anæsthetized I made an aperture from the vagina to the rectum and inserted a self-retaining tube, leaving the expanded head of the implement in the floor of the vagina. I then freely freshened the sides of the genital fissure by cutting away the nymphæ, and making a broad raw surface, which extended to the remnant of the urethra—to the pubic arch. I put the sutures in place with an Ashton needle, and inserted them near together. I also inserted two deep and strong sutures at a distance from the seam to strengthen it. These I call “provisional” sutures in closing a ruptured perinæum, because they provide against any accidental strain on the primitive seam. At once the urine passed through the drainage tube, and for a few days was caught in a soap-dish. On the tenth day the sutures were snipped and removed, and the woman was dry and comfortable. The drainage tube was easily pulled away, and the fistula continued to convey the urine into the rectum. When a couple of ounces or so had accumulated there would be felt a desire to evacuate the bowels; and straining a little at stool would evacuate what had collected. The accumulation caused no special uneasiness; and the evacuations were not troublesome. The patient has twice menstruated through the recto-vaginal fistula, and evacuated the *debris* with urine and fæces. I see no reason why the urine should not be thus voided without complications. The woman is now thirty-eight years old, therefore the menstrual complication is not to continue much longer. If the fistula should grow too small to evacuate coagula or possible urinary concretions, the aperture can be enlarged by operations through an anal speculum. If an exigency called for it, the vagina might be temporarily opened through the vulvar cicatrix. But I have no fear on that score. The patient will soon return to her home in West Virginia. She deems herself cured of a most disastrous accident, which occurred during the birth of a child, the head being in a state of impaction for two days, and then dragged into the world with forceps. Sloughing followed the impaction. The greatest mystery in the case was the loss of the urethra. Probably a phagedenic ulceration followed the traumatism.

The last part of the operation was like that executed to retain a prolapsed womb, except that in the latter the urethra is not included in the juncture, but it is left free for evacuations of the bladder.



When the urethra is lost it is generally best to close the vulvar aperture, and open a fistulous drain into the rectum. The inconvenience to be considered would be the bar to sexual intercourse. But the horrible urinary incontinence would be readily exchanged for almost any other infirmity.

In the case I have just recounted it might be conjectured that both parts of the operative effort could be executed at one trial, but it must be considered that an untoward accident might spoil the entire scheme. In the event of vesico-vaginal fistula with loss of the urethra, the fistula may be established weeks or even months before the episiorrhaphy is executed. Then the larger operation would not be burdened by the smaller.

In the event the floor of the bladder be too nearly lost to have the chasm closed by an operation, whether the urethra be present or not, it is only possible to stay the involuntary flow of urine by establishing a recto-vaginal fistula, and closing the genital fissure between the labia. The anal sphincter controls evacuations, and the fistula is too small to permit fecal matter to enter the vagina.

While a plastic operation may re-establish a urethra, it can not restore sphincter action, hence the artificial canal is of little practical use. At best it could only prove serviceable in the attachment of some kind of a urinal.



## SECTION XIII.

RUPTURE OF THE PERINÆUM.

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An accident common to primiparæ is lacerated perinæum; and a subsequent closure of the rent has been denominated perineorrhaphy—an operation which consists in suturing the borders of the chasm at once, or in freshening the sides of the fissure months or years after the laceration, and joining them with sutures inserted, tightened, and fastened in a manner hereafter to be depicted and described.

A woman may be occasionally encountered in medical practice who has endured laceration of the perinæum, and does not complain of much discomfort from the abnormal state. However, the average patient who has suffered perineal laceration has multiple ills to discourse upon with grief and distress; and in not rare instances the most intense pangs are provoked the instant the cicatricial surfaces are touched. It seems as if sensitive nerves distributed to the scarred structures were rendered neurasthenic or exquisitely tender. On several instances I have put a patient into the third stage of anæsthesia and then attempted to examine the cicatricial borders of a torn perinæum, yet the morbid sensibility of the parts was so keen that the woman would spasmodically straighten her limbs and utterly defeat the manipulating process.

The common defect of a lacerated perinæum is uterine procidencia. After the muscles and fascias in the floor of the pelvis are severed, the natural support of the womb is removed. The “broad,” “round,” and other ligaments may be clever descriptive names, but very feeble and unreliable elevators. A consideration of the descent a hernia sometimes attains will illustrate the yielding nature of ligaments constituted of peritoneum.

The victim of lacerated perinæum suffers many discomforts she can not distinctly express in words. She complains of backache, pain in the loins and groins, and down the limbs. She experiences a sense of prolapsion in the entire pelvic viscera. At almost every movement of the body she feels air



shoot from one fold of the vagina to another; and the contents of the bladder are not easily retained, and may be readily voided. Leucorrhœa generally exists, and a uterine flux—from endo-cervicitis or metritis. Actual prolapsion of the uterus would disturb the ovaries, and provoke general disorder of the genito-urinary organs. Disinclination for active exercise is a concomitant of ruptured perinæum; as well as inability to walk or stand for a considerable length of time. When the anal sphincters are involved in the laceration, there will be involuntary escapes of flatus, and inability to restrain a stool hastened by flatulence. Sometimes a degree of rectocele will exist; and there may be annoying protrusion of anal folds. In not rare instances the bladder will protrude into the chasm far enough to constitute cystocele.

Among the contingencies of a lacerated perinæum are sterility and inaptitude for sexual intercourse. A degree of marital aversion is likely to follow the abnormal physical state.

The perinæum is a wedge-shaped body, with the thin end constituting the posterior commissure of the vulva, and the thick end forming the barrier between the vagina and the rectum. The median line in the integument frequently exhibits a pronounced raphe. The transversus perinei muscles lend substance and elasticity to the perinæum; and, when torn asunder, will, in their continued action, contribute to the width of the fissure. "The perineal body" embraces no large arteries or veins, yet is richly endowed with vessels and nerves. Some of the latter are sympathetic; and reflex in their activities. The anal sphincters belong to the perinæum; and constitute an important factor in the functions of the region. If a perineal rent extend through the sphincters, an inch or more into the recto-vaginal septum, the passage of flatus and feces can not be controlled, and the chasm is more difficult to be surgically closed. Even a feculent fistula in combination with perineal laceration, is an untoward complication. The fascias and connective tissues of the perinæum are strong as well as elastic, hence not easily torn. A woman who has born one child normal in size, is not apt to suffer perineal laceration at subsequent births.

There is a marked difference between the muscularity, so to speak, of the perinæum of a robust woman, and the utter flimsiness of the perineal body in the thin and delicate primiparas that make the obstetrician quake through anticipation of impending consequences. Ruptured perinæum is not



so often the result of obstetrical blundering, as the penalty of a physically perverted womanhood. The slight and petite figure, often brought about by the conventionalities of two or three generations of society habits, is not fit to endure the strains of gestation and parturition. An amplitude of perinæum is rarely associated with a pinched pelvis, and narrowness of the figure in general.

At this point it may be stated that the most careful and experienced obstetrician in the world can not prevent an occasional tear or rent of the perineal structure. The laceration may be slight—just involving the fourchette, or it may extend to the sphincter ani muscles, and even through them to the recto-vaginal septum. As soon as a few fibers give away, the tear extends with rapidity, reaching the anus before the obstetrician knows what has been going on. He may suspect a rent on account of the speedy termination of the delivery, yet he must make an ocular or digital examination to determine whether the perinæum remain intact or not. The preparation of a perinæum for the tension it is to undergo while labor is progressing, is a rational precaution against laceration. The anointed forefinger should be swept through the fourchette frequently and forcibly. This will render the upper border of the perinæum yielding and elastic. Then, again, a too rapidly advancing head may be retarded in its motions until the perinæum has been rendered extensible, and gradually made to slide off the crown of the child's head.

It has been charged that the use of obstetric forceps tends to perineal laceration, yet the fault is oftener that of the instrument's *misuse*. As soon as the child's head passes the inferior strait, the forcep blades are to be disengaged and laid aside. The hands of the obstetrician will then be enabled to complete the delivery, and can be made to successfully manage the tense perinæum. As the crown of the child's head passes under the pubic arch it can not be made to yield much; hence the border of the perinæum has to stretch all the more. Gentle yet efficient and rational manipulation may then prove of great importance to save a rent, or the handling be so hurried, senseless and rash as to seriously maim the woman. The shrieks and groans of the patient, and the rapid culmination of symptoms are apt to render unsteady the nerves of the inexperienced; it is then that haste makes waste, and a cool conservatism obviates rupture of the perineal body.



## PERINEORRAPHY.

If the perinæum be joined with sutures as soon as the delivery is complete there is a remote hope that a satisfactory union may result. However, I believe I shall never attempt the early procedure again, unless some new and more promising method present itself. Both physician and patient are tired; and proper implements are rarely at hand. Besides, the perinæum is about to undergo *involution*, and on that account is not in the best condition to sustain and favor the recuperative forces. Needles manipulated with the fingers can not be made to traverse structures just where it is intended they shall go; but the needle and a handle should constitute one implement. The Ashton needle with an eye near the point is the one at present recommended. If this be at hand, and a supply of fine silver wire, closely and deeply implanted sutures may secure a desirable union.

After the lochial discharge has ceased, and normal involution is presumed to have taken place, the legitimate operation for closure of a ruptured perinæum is in order. The patient is to be in as comfortable quarters as possible, and have a good nurse. The bowels should be evacuated the day before the operative procedure is to take place. A lounge is too low for the convenience of the operator. The gynæcological table is about the right elevation when available, yet the side of a bed is the place where the patient usually rests when undergoing the operation. Her hips rest near the rail of the bed, and the feet and legs are held in the lithotomy position. The operator rests upon his knees or sits upon a hassock. At hand are flesh-cutting scissors, a scalpel and bistoury, a pair of toothed forceps, sponges, towels, and a basin of warm water; and not far away shall be an Ashton needle and a few yards of silver wire in sizes of 28 and 30. Anæsthesia is to be utilized. The freshening process is the most particular part of the procedure. If the rent extend into the substance of the anal sphincters, there being only a thin septum between the rent and the mucous membrane of the bowel, the blade of a knife is well adapted to splitting the partition, and in extending the division to the side of the cicatrized chasm. The toothed forceps then seize the flap started with the knife, and scissor blades snip the flesh and extend the freshening or vivifying process. A substantial paring is to be removed—there is danger of taking too little. A speck of uncut surface will defeat the healing process. Sometimes I do not wholly disengage the upturned and inturned flap,



but let it adhere at its inner border and there act as a shield to the upper or inner end of the sutured seam. If the flap be not an obstacle it may remain without incurring risk. However, when the freshened sides are coming in contact through tension put upon the sutures, care must be exercised to keep the fissure clear of the flap. The slightest infolding might readily spoil the operation.

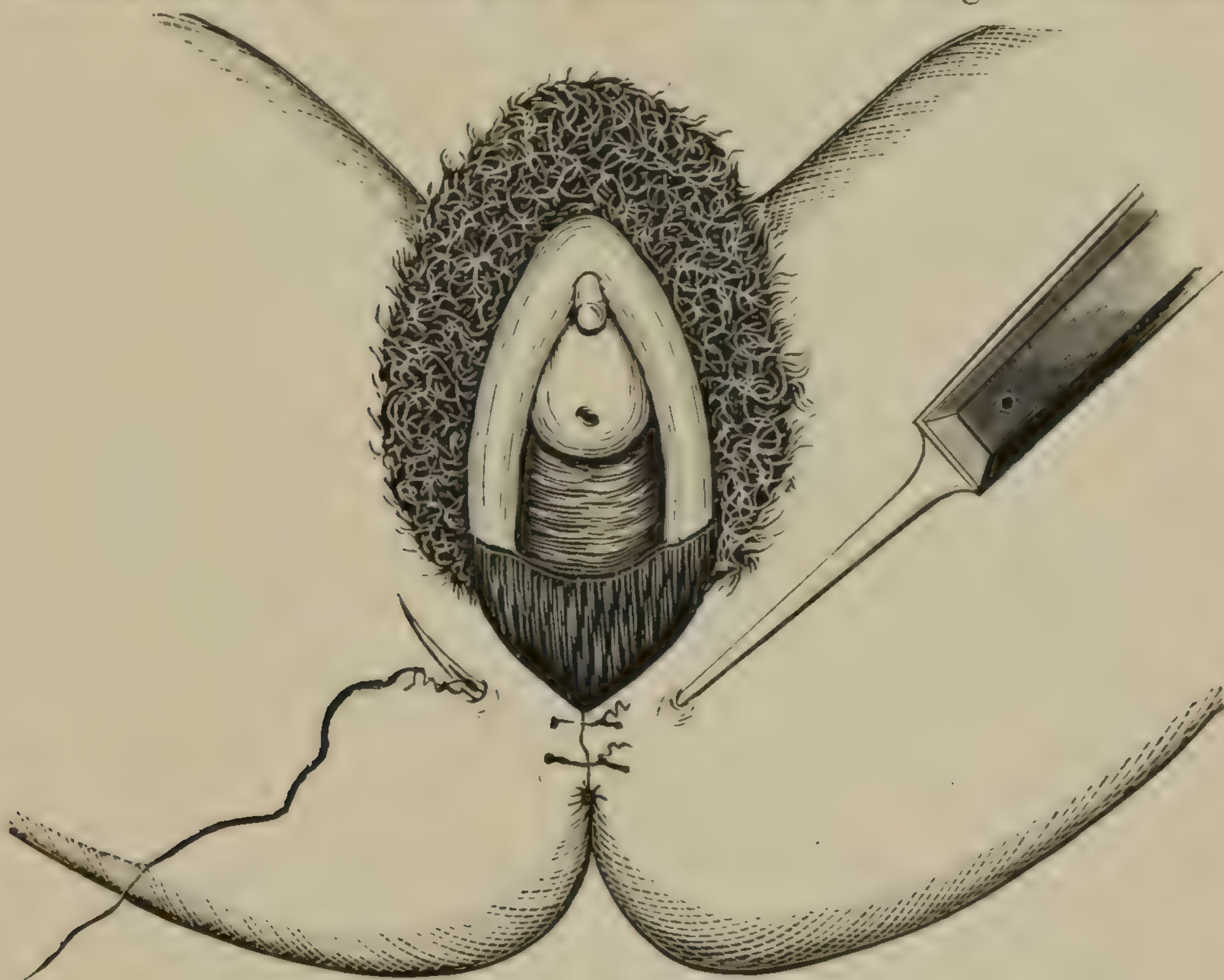


Cicatrized structures freshened.

After raising the flap of cicatricial tissue, which in its entirety is positively assuring that the freshening procedure has been a success, the larger part of it may be removed with scissors. In amount it does not seem worth considering. The beginner may think he should be sparing of the lateral walls of the chasm, and actually cheat himself out of what otherwise might have been a successful operation. The safe rule is to take all that may be needed to make a fresh border. The denuding process is not to extend above the original fourchette, for that might endanger a contracted vulval aperture. The defective parts are to be as nearly restored as possible. When the sutures are just inserted the entrance to the vagina appears too small, yet on the removal of the stitches the parts resume their normal outlines.



The introduction of the sutures is commenced at the anus or at the depth of the chasm. The point of the needle—an Ashton—is entered on the patient's left, a third of an inch from the border of the freshened edge or fissure, and carried deeply in a direction to cross the median line, yet not entering the rectum nor appearing in the depths of the wound. It emerges on the opposite side at a point corresponding with the one of entrance. As soon as the eye is brought into view it is threaded with a strand of silver wire fifteen inches in length. Number



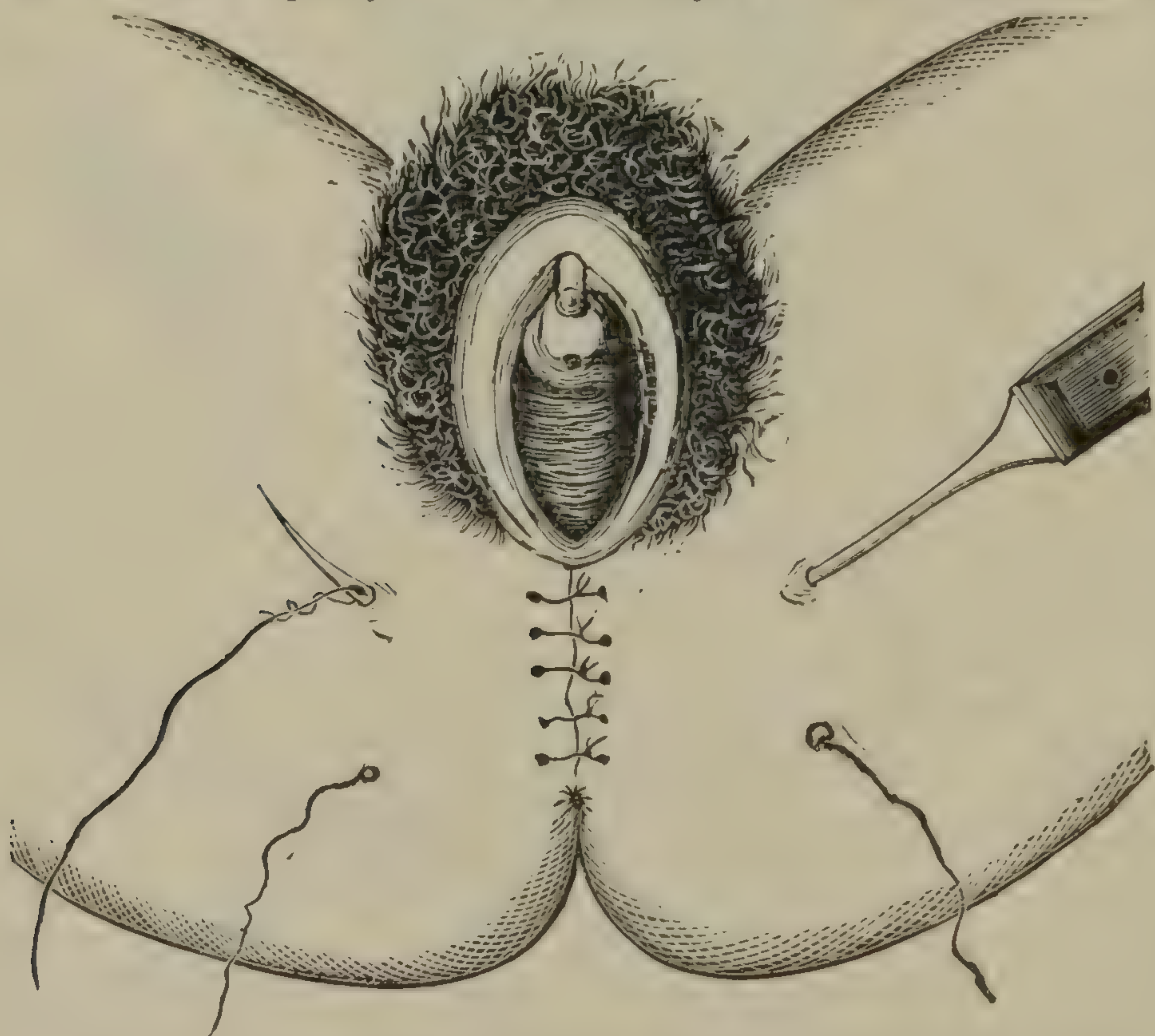
Ashton needle carrying sutures.

30 will do for size. As soon as a loop is twisted into a fastening the needle is withdrawn, taking with it a wire which is to be disengaged from the needle, and its two ends drawn upon till they snugly close the fissure where the joining force is imparted. One twist of the two ends, and then another and another will establish an unyielding suture. The free ends may be snipped with scissors, or they may be left awhile as a hold to steady the parts while the next stitch is taken. The second is like the first, and a quarter of an inch from it. It strikes deep, yet does not reach the rectum. After the second suture is made secure by the twists, the free ends of the first may be snipped off with scissors. The free ends of the second make a hold while the third is going into place. Other sutures at interspaces



of a quarter of an inch are to be inserted, one after another, till the gap is completely closed. The last is the shallowest; and of course may be the shortest. After the last stitch is inserted, the finger is used to clear away any coagula from the vagina, and to manipulate the seam on the inside. It is necessary as the sutures are going into place, that the closing fissure be clear of clots.

It will be observed that quilled sutures, so called, are not recommended. They are entirely supplanted by the interrupted sutures of silver wire. They never did serve a useful purpose, but were perpetuated much beyond "their allotted time" by those who stupidly revere old ways and methods. Now, if



The introduction of two provisional sutures after the primary seam is completed.

silver sutures would not corrode and furrow the flesh, as silk and other ligatures when subjected to tension, the operation of closing a ruptured perinæum would end with the introduction of the last in the row of sutures; but the fact is well known that silver wire will furrow the flesh as rapidly as other materials. To obviate any strain on the closing sutures I have devised two *provisional sutures*. They are to be cut away on the sixth or seventh day—the others may remain till the tenth or eleventh day, when the joining will be so firm that no longer is there danger of re-laceration. The provisional sutures are in-



serted as follows: The Ashton needle is made to enter at the distance of an inch from the seam, and is sent as deeply as the first suture; and its point is made to emerge on the opposite side at a position corresponding to the one of entrance. A number 28 wire is then eyed and made to follow the withdrawal of the needle. A second provisional suture is introduced as was the first, yet three-quarters of an inch above it. Lastly, the ends of each are drawn upon until the intervening flesh is made to overlap the primary seam and completely hide it from view. Two or three twists of the ends while the ligature is taut serve as a knot. These sutures take all strain from the original seam, and obviate dangers of tearing apart in the various movements of the body. The knees need not be tied together; and the patient is allowed to assume any attitude she desires to take, even to rise upon her feet or sit in a chair. However, the provisional sutures inflict pain if much strain is put upon them—the patient is most comfortable when quiet. Doses of chloral or of other anodynes may be administered the first and second days, if much suffering follow the surgical operation. The patient is to take sustaining nourishment; and gases and feces are to be voided when desires for movement are felt. The urine is to be evacuated through a catheter. A long and elastic instrument is the easiest to manipulate. A nurse can be instructed in the use of the implement. It is well to douche the seam twice a day with an antiseptic solution, a syringe being utilized to direct the currents. A stream should be thrown into the vagina, and upon traumatic surfaces externally. The bed is to be protected all through the treatment.

In the event that the laceration extend to the right or left of the anus, and the fissure cicatrize, the freshening process must extend there, and an extra suture is needed to hold the raw surfaces in juxtaposition. This suture should be inserted in the beginning of the closing of the seam.

Should a recto-vaginal fistula exist, its borders should be freshened, and closed with sutures before the ruptured perinæum is assailed surgically. The fortuitous aperture is not easy to obliterate. The vivifying process must be carefully executed, and several fine sutures must be passed across the chasm, one by one, the first being employed nearest the anal sphincters. The free ends of this are to be utilized to hold the parts well in view while the needle passes for the second stitch; and so on till the false passage is entirely closed.



Not infrequently the perineal rent extends through the sphincters and up the recto-vaginal septum as far as the uterus. This constitutes a formidable chasm to close. Once I caused a union of the recto-anal part of the rent, and left the perineal division of the injury for a second encounter. Having gained some boldness from experience I freshened the borders of the fissure the entire length of the chasm, and then sutured a corresponding distance. The very finest silver wire is employed to join the recto-vaginal part of the chasm, the first suture being near the uterus or at the upper end of the rent. As suture after suture goes in place a cylinder of wood a half inch in diameter is utilized to maintain the caliber of the rectum. A very large bougie is a useful implement for the purpose named. It is a nice piece of manipulation to close the seam without pucker or undue strain at the anal verge and also at the turn of the perineal seam. And after the seams are complete, it is best to insert a perforated bougie in the anus and rectum. This is a medium for the escape of gas, and for supporting the recto-vaginal seam. I have employed the over-and-over stitch, using a curved needle and a fine wire. The stitches were made over a rectal bougie, and snugly held as the seam progressed. When the anus is reached, the end of the suture can be sent out through the flesh on one side or the other and temporarily fastened. Then interrupted sutures of larger wire were made to close the gap in the perinæum as if no recto-vaginal complication existed. The continued suture was snipped on the tenth or eleventh day, and removed in segments. If a small fistula accidentally remain, it may be freshened as to its borders, and joined with interrupted sutures; or it may be cauterized from time to time till the accidental aperture closes.



## SECTION XIV.

HERMAPHRODITISM.

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Casper, (*Forensic Medicine*, Vol. iii.) says: "A true hermaphrodite, that is, a double set of organs with the functions of both sexes united in one individual, is never found in the human species." In plant-life the combination of the two sexes in a single blossom or germinal apparatus is not uncommon; and the same is true in the lower forms of animal life.

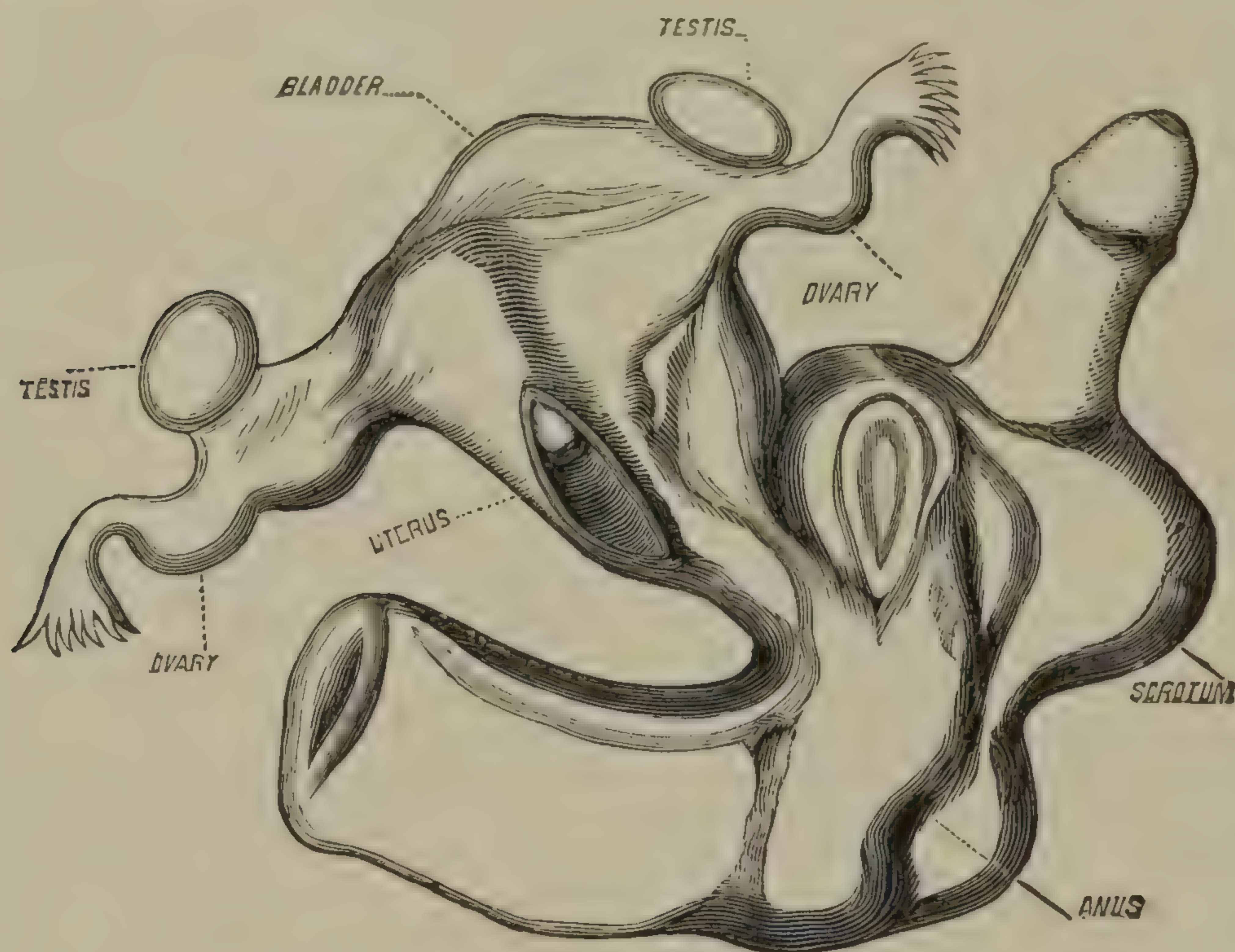
Ovid, with poetical license, describes Hermaphroditus as the offspring of illicit love between Hermes (Mercury) and Aphrodite (Venus); and relates that afterwards a nymph became enamored of the fair youth. Her passion not being reciprocated, she threw her arms about him, entreating the gods to render her inseparable from him she adored. The gods heard her prayer, and formed of the two a being of perfect beauty, possessing the characteristics of both sexes.

In a forensic point of view it is important that, when a child of questionable sex is born, the accoucheur render correct judgment in regard to existing sexuality. If a girl be declared a boy, in after years shame might grow out of the mistake. A man(?) in Connecticut *voted*, and in a close election turned the scale. At a later contest the mother of Suydam—such being the family name—stated at a tribunal that her son had menstruated regularly ever since he arrived at puberty. This statement proved the true character of her child's sex, and took from him the right of suffrage.

In a male passing as an hermaphrodite there exists either epispadias or hypospadias, and the urethra and bladder are defective. Such persons, passing as males, are permitted to marry; yet a divorce would be granted the wife if she sought redress in the courts. However, an authentic case is cited in which a man affected with hermaphroditism buried two wives and married a third. It is not stated whether children were born or not. If the penis be intromittent, fertile semen might be thrown within the vulvar aperture. An hermaphrodite



dressed as a female in England became an associate servant in a family; and one night the mistress of the house was summoned to the servant's room, and to her dismay was confronted by the cries of a child. The family physician was called, and after some questioning the mother confessed that the other servant had been acting toward her as if she (?) were a man. The doctor examined the masculine maid-servant, and found hermaphroditism existing, with one testicle and quite a penis. Sustaining the medical man's diagnosis was the fact that the infant was hermaphroditic.



When female characteristics prevail or predominate, there is usually a vaginal pouch or pocket; and the urethra terminates in a vulvar aperture. There may be an hypertrophied clitoris, and a testicle in a right or left labial lump. On the side opposite the testicle there will be an ovary, yet within the pelvis along side the uterus. The admixture is truly unfortunate—so much so that removal of the testicle might be surgically justifiable. However, it would not be right to wholly unsex an hermaphrodite. The absence of testicles from the scrotum is not to be taken as evidence of sterility or impotence. A married woman accused of sterility on the ground that she was hermaphroditic would have to be examined by medical experts, and judged according to the degree of sexual incompetence. Possibly a slight surgical operation would render her capable of becoming fertile.



The accompanying diagram, which appeared in *The American Journal of Obstetrics*, April, 1887, represents a remarkably even division of the sexual organs in a person who died at the age of 27 from congestion of the brain during menstruation. The party was subject to paroxysmal attacks of epilepsy, with hysteria and dysmenorrhœa. "The vagina and male urethra contained a colored fluid like menstrual blood. The individual was remarkably fine looking and robust, and was more rotund in limb than is usual in male subjects. The bust and chest were those of a male; the pelvis broad; no hair on breast, shoulders, back, or extremities. Nothing was observed in the person during life which attracted unusual attention. The party was dressed as a male, and in habits was like those of other masculine friends." The picture was made from a cast of the double organs themselves, and fell into the possession of Dr. Lewis A. Sayre, of New York. The diagram bears the names, and well displays rectum, pubes, penis, with prepuce and glans, scrotum, vagina, uterus, ovaries, tubes, and testicles. Urination and menstruation took place through the urethra.

Dr. Sayre wrote the following letter concerning the malformation:

NEW YORK, March 16th, 1887.

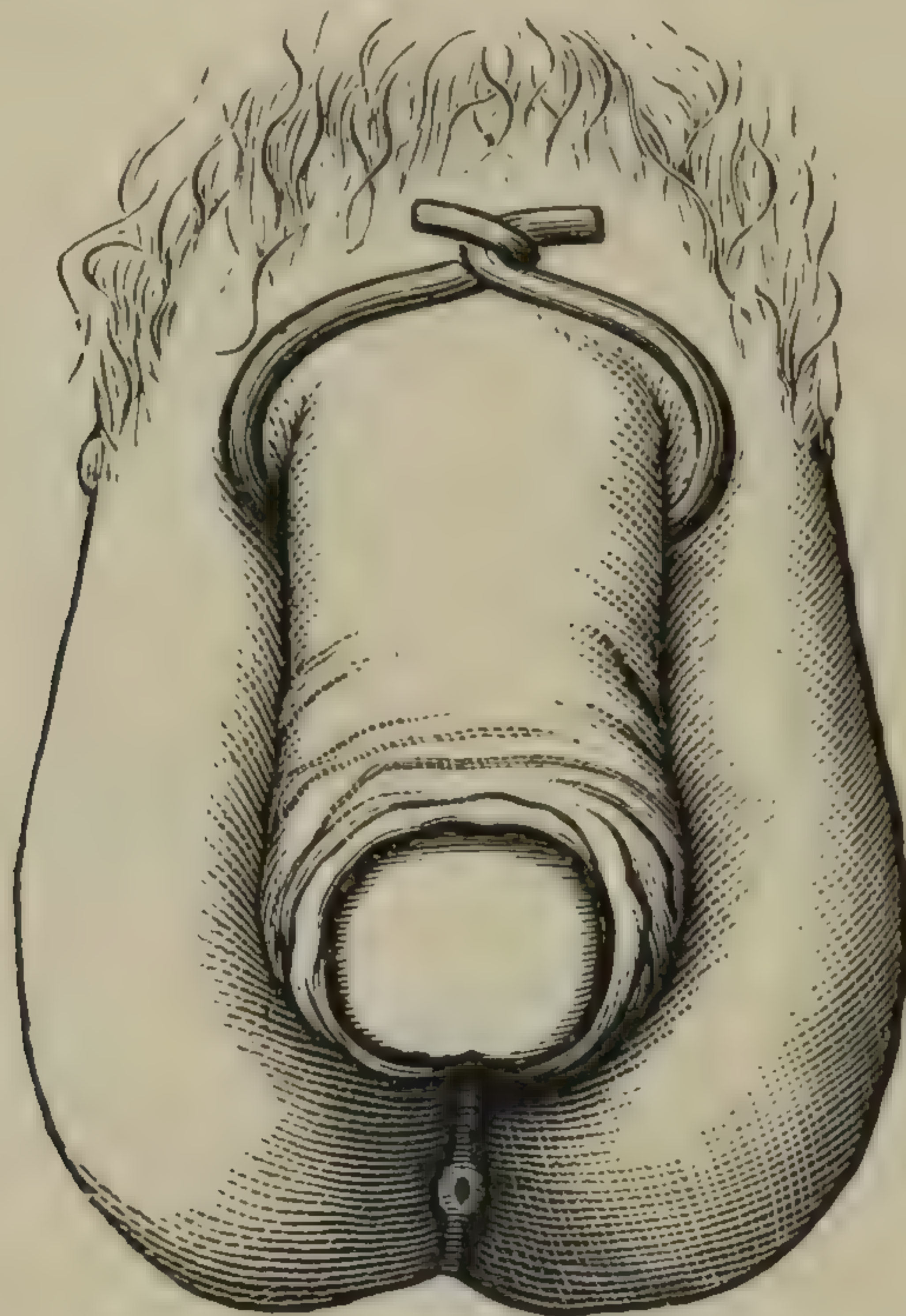
GEO. B. FOWLER, M. D.:—The cast of the pelvic organs of the hermaphrodite were made for me by Mr.——, 111 Grand St. from the *original specimen*, brought to me by Dr. Avery, of Cleveland, Ohio, who had attended the patient (as a man) for many years, and made the post-mortem. Yours truly,

LEWIS A. SAYRE.

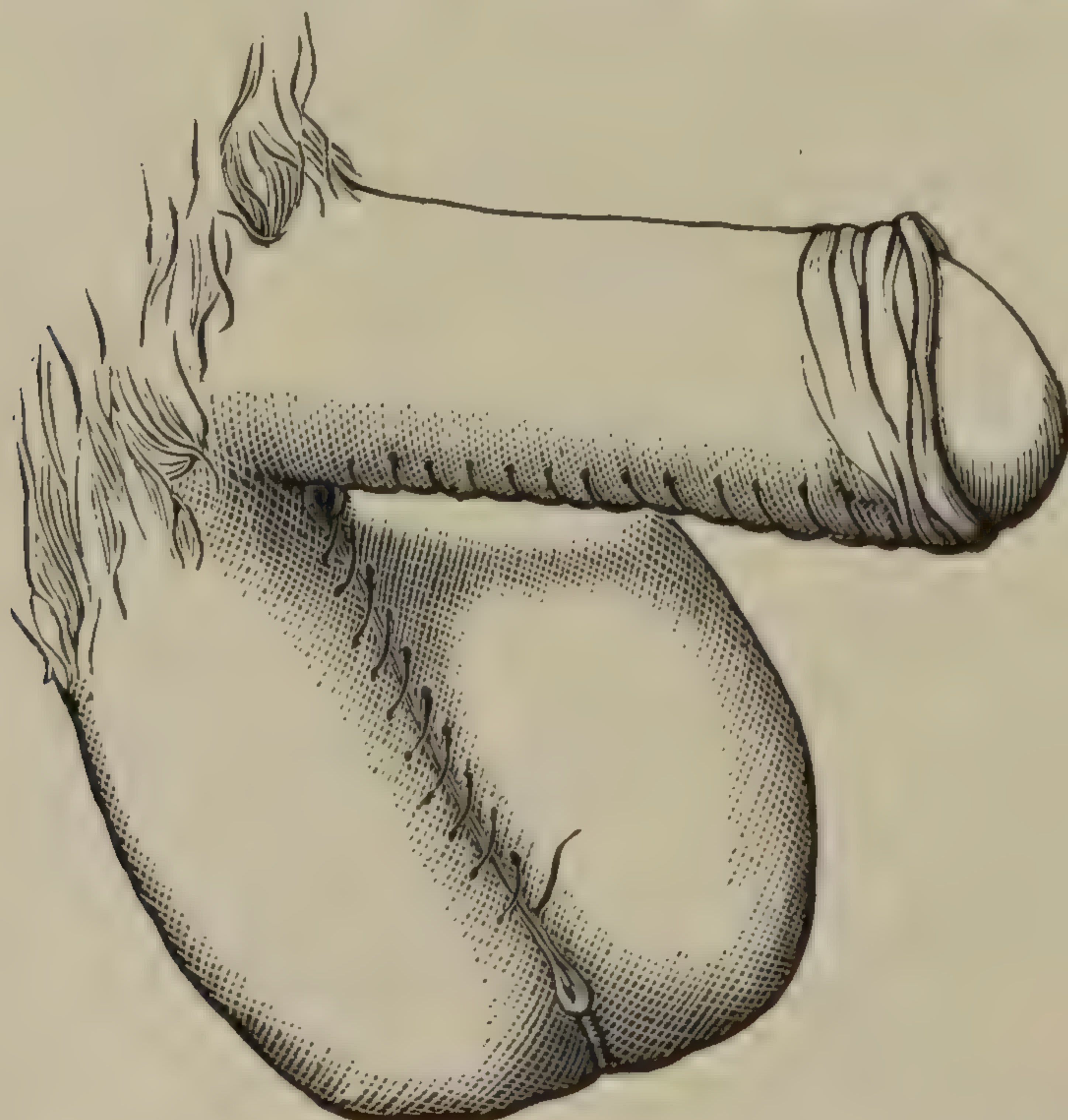
Spurious hermaphroditism, or some degree of deformity in the genito-urinary organs, is quite common. In males an epispadias of the penis is apt to be attended with extrophy of the bladder, the front wall of the viscus and the hypogastric walls being absent. Such a subject is the most unfortunate of creatures. The urine dribbles from the open ureters, and no device will remedy the evil. In childhood the smell of urine is not so offensive as it is in later life, when the ammoniacal odor is disgusting. The sufferer does not wear pants, but a frock which covers the hips and permits the urine to fall to the floor, bed, or ground, as it distils from the exposed outlets of the ureters. The lining of the posterior parietes of the bladder is red, sensitive, and hemorrhagic. To remedy this part of the deformity a plastic operation may be performed to close the chasm.



Hermaphroditism, in a certain degree, is somewhat common. In the treatment of surgical disease of the genital organs of the male it is not rare to find some varying defect in the urethra.



frænum, or foreskin. The commonest defect is the termination of the urethra before it reaches the glans; the meatus is

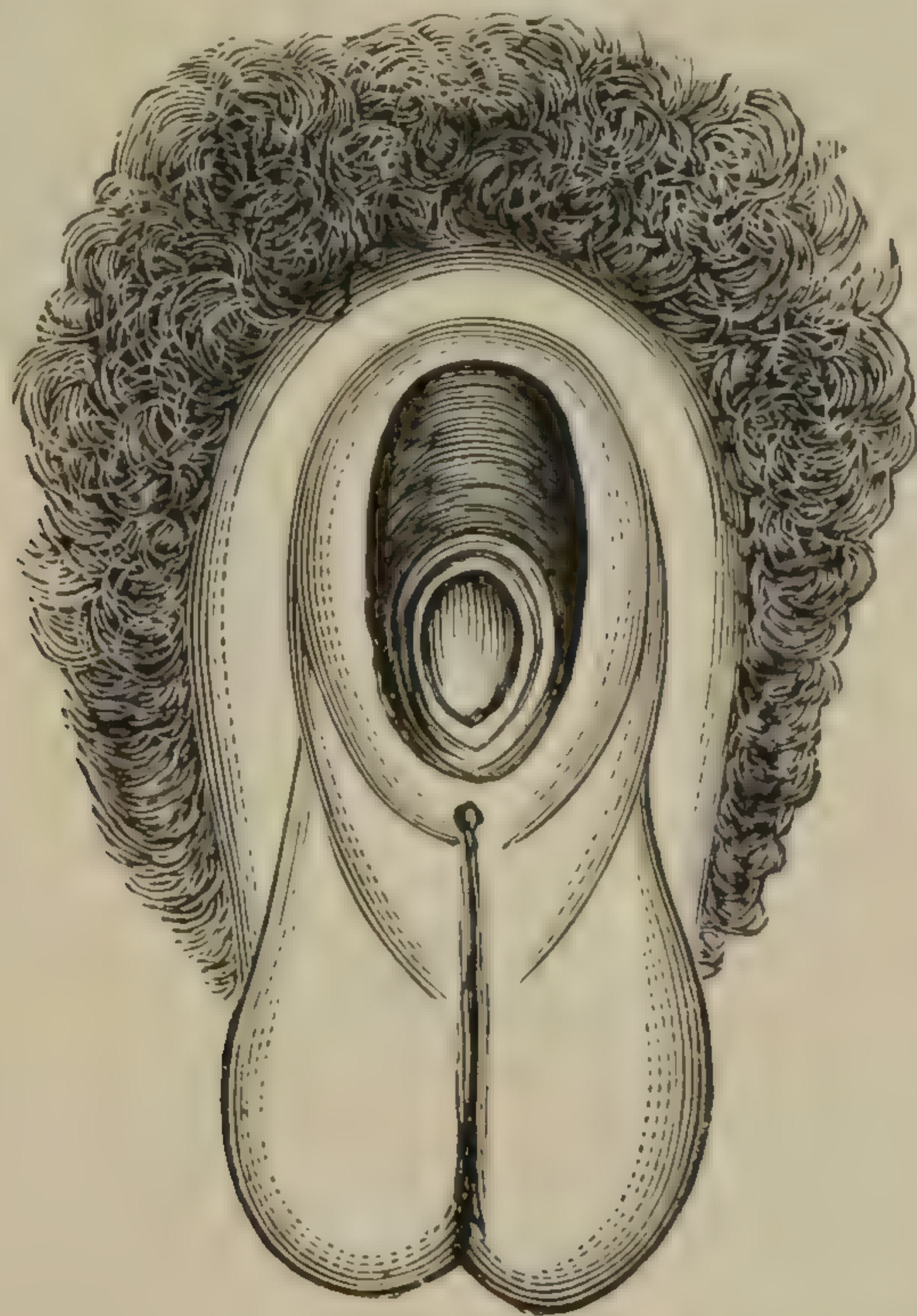


an inch, more or less, from the normal aperture. In several cases I have found the penis tied to the furrow in the scrotum, with a urethra running to the bladder without entering the penis.



To benefit such a case as much as possible, the penis may be freed from its imprisonment. It is not a penis, but a clitoris; it is not an independent and free moving organ. To establish copulating power the penis must be set free from its bondage.

To do this I send a leaden wire through the scrotal structure at the base of the penis. This foreign body establishes a dry fistula which makes a point to grow to where a knife cuts the integument on the under side of the penis to the established aperture. Next the two borders of integument are to be sewed together on the under side of the penis, and the two borders of the scrotal incision are to be stitched together. Both seams heal kindly, and there is a barrier against an attempt to unite one with the other. The diagrams exhibit the deformity and the method of reparation. The urethra is not disturbed, the urine being voided through the old aperture. The passage corresponds to the female urethra, being short and dilatable.



Inasmuch as the semen would be emitted at the scrotal aperture, none of it could find its way into the vagina in copulation, hence sterility would exist, unless the seminal fluid were artificially introduced. Cases of the kind have been recorded, and need not be apochryphal.

A case the foregoing diagram faithfully represents, is of a young man who needed treatment for a gonorrhœal trouble. His penis appeared like a clitoris; and the urine was voided from an aperture near the end of the dwarfed organ, yet from a



urethra that extended to the bladder without entering the penis. Testes were in the scrotum, and little of the female character was present. While endeavoring to have intercourse with a lewd woman he became infected with gonorrhœa. He admitted a pleasurable contact, with an emission, but claimed there was no considerable entrance.

The next diagram represents a female hermaphrodite, or a genito-urinary deformity with the female elements predominating. The girl was brought to me by her mother, who would



know if she be fit for matrimony. There was no male element in the case, though the clitoris had some characteristics of a penis. The aperture leading to the vagina was small, and the urethra terminated in the depths of the chasm. A finger in the rectum discovered a well developed womb. Menstrual manifestations were regular. I decided that marriage was not likely to be followed by embarrassment; and an after history of the woman proved that my judgment has been sustained. The



woman married and bore a child. This might be denominated a spurious case of hermiaphroditism.

Medical literature is dotted here and there with reports of defects in genital developement, an ovary existing on one side of the body and a testicle on the other; and the "Nestor of American Surgery" castrated a subject of the kind to "prevent accidents." This was going a step further than jurisprudence would justify the general surgeon in the exercise of his functions, yet no prosecution occurred in the case. No trouble of the kind has come to light in the annals of jurisprudence.

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### EXTROPHY OF THE BLADDER.

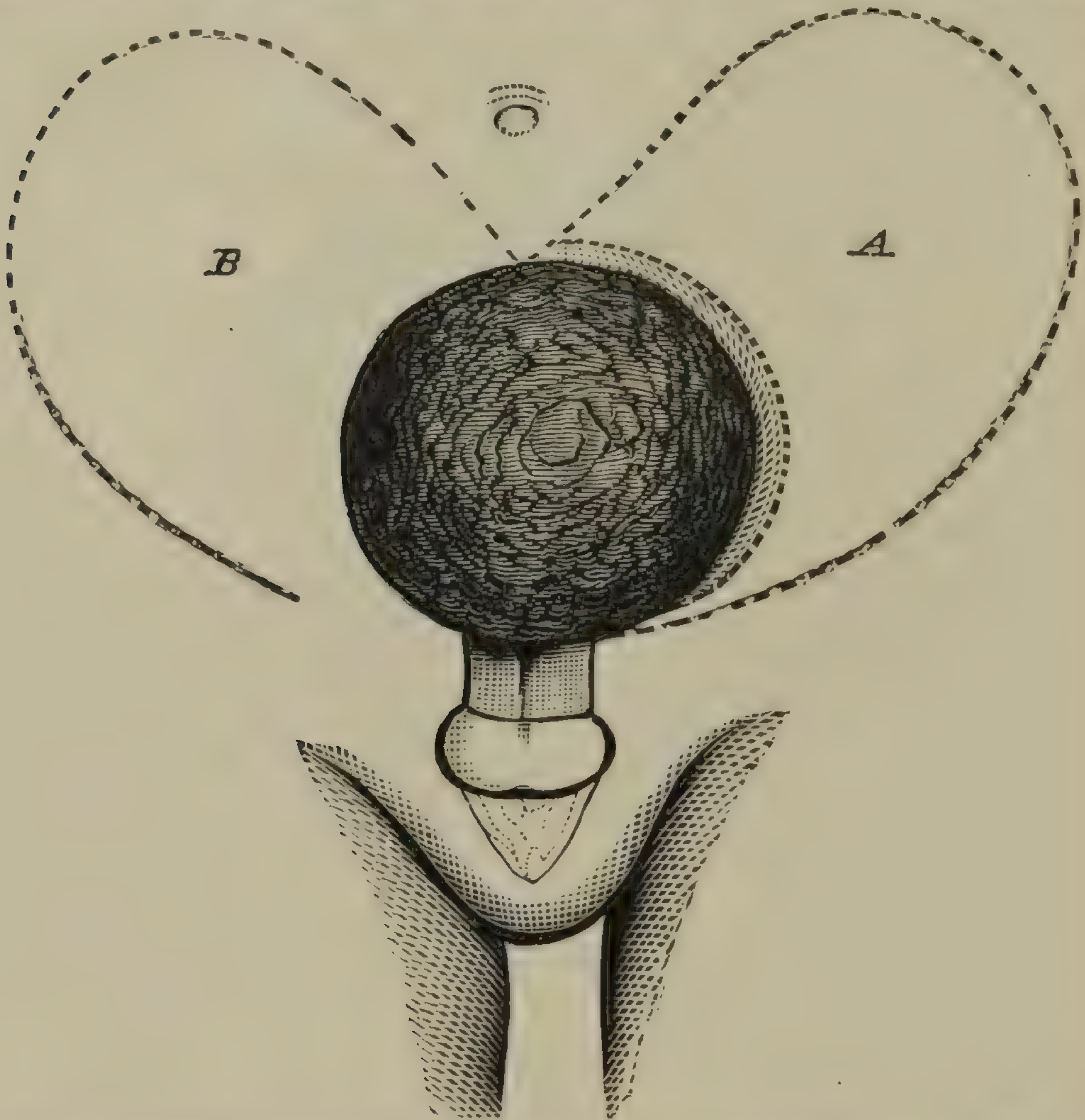
Both male and female children may be born with the front wall of the bladder absent. The defect belongs to hermaphroditism; and in males there is epispadias of the penis, a mere groove beneath representing the urethra. An operation to cure the vesical extrophy—to cover the red and fungous posterior aspect of the bladder—is practicable. To illustrate the operative procedure I will report a case I successfully treated in Oct., 1889. The patient was a boy five or six years old. He was suffering from the chafing of his clothing as well as from urinary incontinence. The posterior wall of the bladder showed the entrance of the ureters. The apertures constantly gave exit to the urine as it came down from the kidneys. It then trickled down over the defective genitals to the clothing, bed, or floor. The fungous and vascular bladder bled when chafed by the shirt, pants, or frock.

The bared segment of bladder was a little larger than a silver dollar; and appeared as if covered with "proud flesh." The scrotum was short, yet in each lateral half was a testicle. The penis was short, and an elongated prepuce hung beneath the truncated glans. No hernia existed as is usually the case in deformities of the kind; but there was wanting a part of both pubic bones. When the boy cried, coughed or sneezed, the existing segment of bladder protruded, there being no resisting media—no hypogastric walls to resist the impulse given the abdominal viscera.

Before operating I cut patterns of leather to represent flaps I proposed to transplant as covers to the vesical chasm; and made dotted outlines on the skin with ink; then with patient well anæsthetized, the operation was entered upon. I dissected



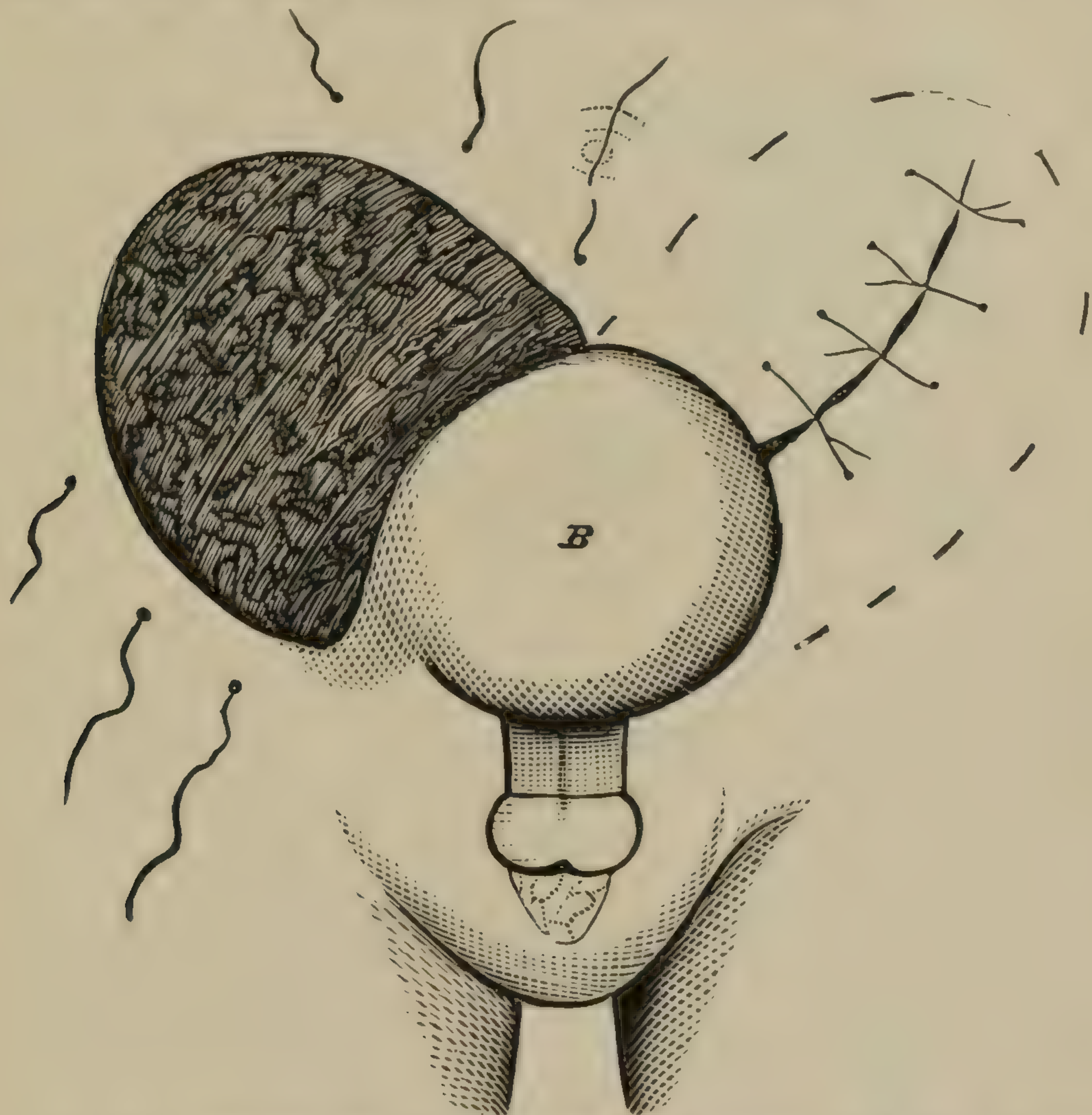
flap A to a base line indicated by dots; after which I dissected flap B to a base line presumed to be wide or broad enough to embrace vascular supplies. Next I proceeded to close the gaps made by displacement of the flaps. In doing this I employed long and fairly strong silver sutures—three or four—which reached across the wide chasms and beyond. I was afraid the



tension needed to drop the borders into apposition might cut through, but all went well. The edges were forced into conjunction, and with comparative ease. This part of the work having been well done on both sides, the adjusting of the flaps was next in order. The first was turned upside down, its base acting as a hinge. A couple of animal ligatures served to fasten its tip to raw surface on the opposite side of the chasm. Then flap B was swung on its base, and made to cover A—raw surface to raw surface. Finally I carefully sutured the border of the upper flap to the fresh edge of the chasm, the stitches being fine silver wire, and placed near together. The diagram represents the twist in the pedicle of flap B, as it is slid from its original location to its new position.



The third diagram represents the completed operation. The finishing dressing consisted of long strips of rubber adhesive plaster, reaching clear around the hips and crossing the sutured flaps. A textile compress was next applied over the occluded chasm and held in place with other adhesive strips. The urine flowed beneath the flaps at the lowest point. At all other points the healing process entered upon its course.



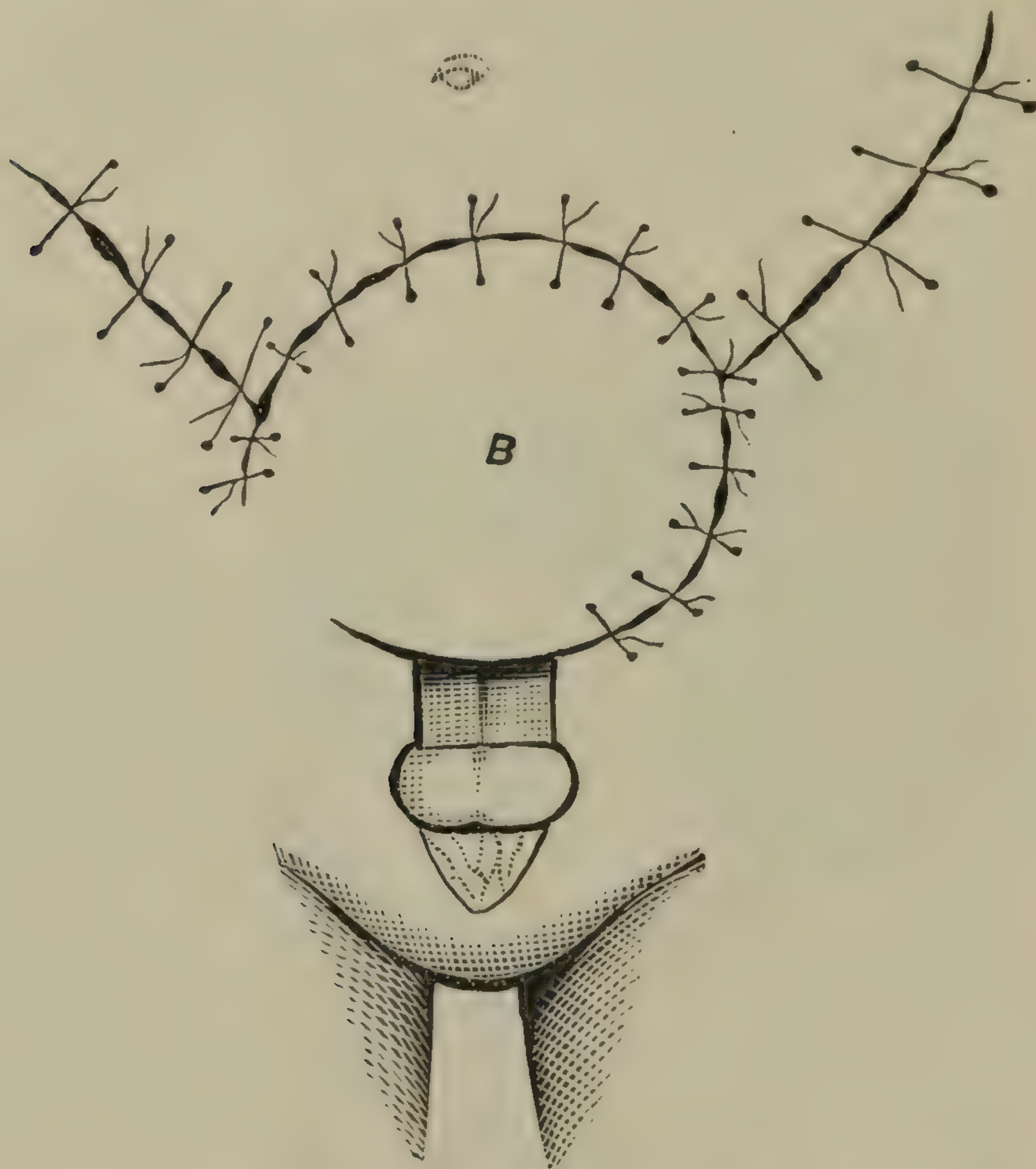
In just three weeks the scars were formed, and the operation, as far as it went, was an unqualified success. On the tenth day I snipped and removed the sutures, when no fistulous track or other defect was present.

The urine passed down to the gutter in the undeveloped penis, and was caught in soft sponges.

When the boy arrives at puberty the penis may be converted into something like a normal organ by flap operations, the elongated prepuce being utilized in the procedure. There will be no sphincter to control the flow of urine, but a urinal can be modeled to serve the needs of the case—to collect the urinary



excretion till a convenient time for emptying. The penis is yet too small for the completion of the cure, and the rest of the operation—the closing of the bladder—proves the most successful of any thus far attained.



In a review of surgical attempts to close the chasm of *vesical extroversion*, I got suggestions, but chiefly to avoid, and not to follow. I could not imitate the plan of Dr. Ayres—could not get the first flap from the middle of the abdomen on account of a thin umbilical region. Ayres took two lateral flaps to cover the first, joining them in the middle. I had to take two large flaps to cover what he did with three, hence I had larger chasms to fill. But to my surprise I drew the edges together without difficulty. In almost all cases of extrophy of the bladder, the umbilicus is lower in the belly than normal, and cicatricially defective, therefore a central flap of integument above the chasm is impracticable. *Wood's operation*, so called, is identical with that of Ayres, except that the two lateral flaps are borrowed from the regions of the groins. The objection to the modification is that the groins of such subjects are filled with hernial protrusions,—bad regions to borrow integument from. Erich-



sen judiciously remarks upon the two operations: "If the umbilical flap be not of sufficient length, very troublesome fistulae are apt to be left at its angles, requiring other plastic operations for their cure;" and I venture to add that erysipelas and gangrenous sloughs will occasionally render futile attempts to construct a front to the bladder and belly.

Dr. Gross says : "I must candidly confess my want of confidence in this operation. The great danger will be erysipelas, likely to eventuate in sloughing of the flaps." The attempt of Pancoast was a failure, and so has it been with the experiments of other surgeons. Mr. Holmes has closed the vesical chasm with flaps, but as yet I have not seen his plan pictured. Dr. Daniel Ayres, of Brooklyn, N. Y., issued an illustrated pamphlet to publish his invention. The patient was 28 years of age, and a female. A vagina existed, and was not involved in the operation. The urine was caught in a rubber urinal strapped to the thigh. To Ayres belongs the credit of instituting an operative cure. The degree of success he attained has encouraged others to engage in the scheme.



## SECTION XV.

## TREATMENT OF PUERPERAL MAMMÆ.

Primiparæ are apt to have trouble with the breasts just after confinement. The effort to establish the lacteal secretion is attended with a febrile cyclone. The disturbance is primarily local, yet the vital energies move at such a high rate of speed that not only is mastitis established, but a general fever pervades the entire organism. At first the mammæ may be full and hard through lacteal distension; but this is followed by induration caused by inflammatory exudation. The febrile onset is attended with rigors, pain and restlessness, indicating that the disease is general and not wholly local.

Puerperal mastitis occurs oftenest with primiparæ, yet may attend any one of several later confinements. There is then a cause outside of the primary evolution of the lacteal secretion; an inflamed breast may be developed by imprudence in eating or exercise, or by exposure to cold and dampness. If the child be indisposed to nurse, the distended breasts become hard and painful. The functions of the organs have been thwarted and worried through over-distension; and from irritation comes inflammation with all its morbid *sequelæ*.

It is common for nurses to over-treat inflamed breasts. They knead, pump, foment, and poultice, till to escape a milk-abscess is a marvel. They bathe the sensitive organs in oil and camphor, and rub the swollen glands almost continuously, when in fact the breasts need anodynes and *rest*.

If a fissure exist in the nipple it should be dressed twice a day with juniper pomade, and the saliva of the infant should be wiped away directly after nursing. If a breast pump be employed, it should be with moderate force. There is no necessity for exhausting the breast of milk. In fact there is very little lacteal fluid secreted by an inflamed mammary gland.

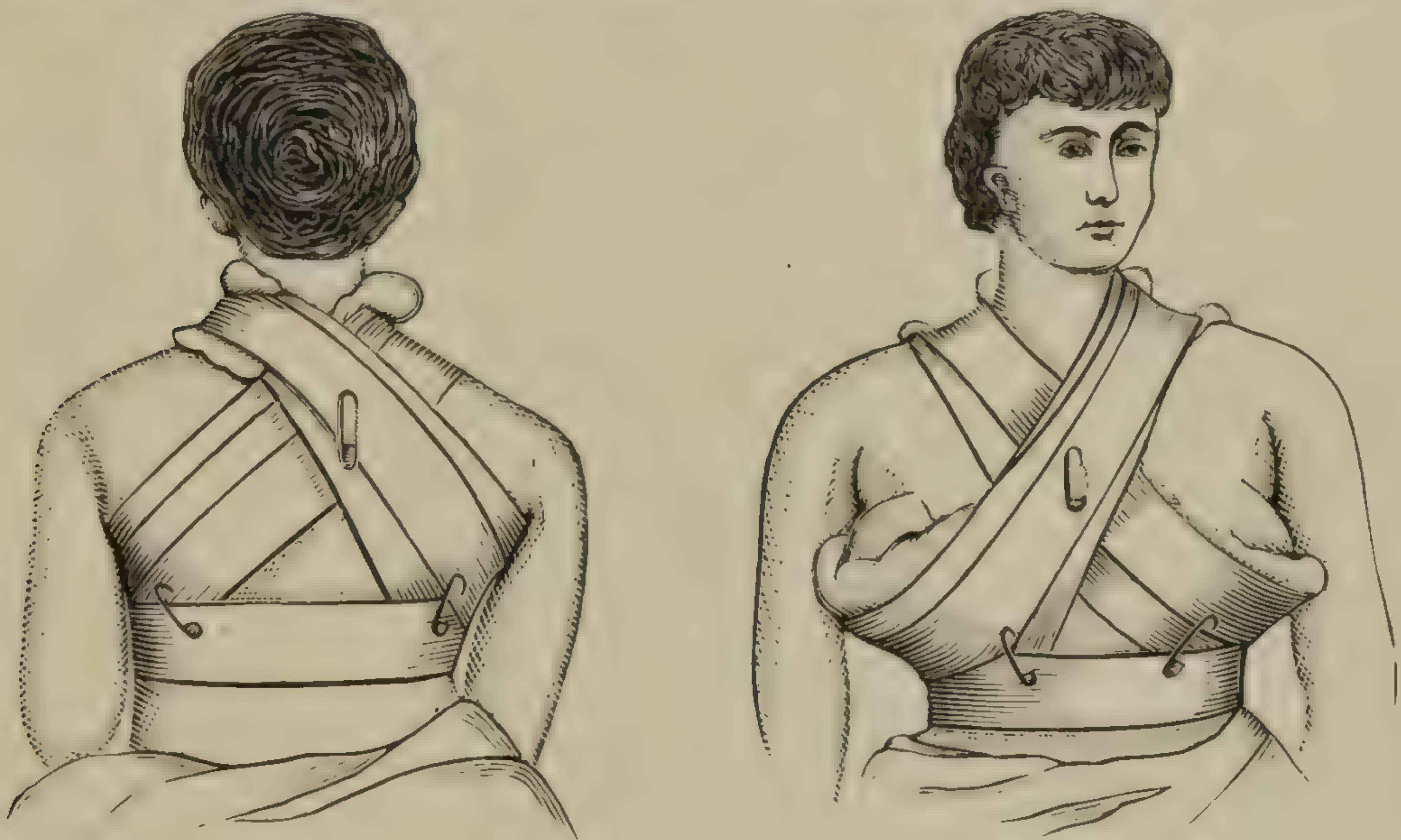
If an abscess go on to purulency, the pocket of pus should be evacuated with a bistoury, and not with an aspirating apparatus. The rapid supply of purulency calls too often for aspira-



tion,—the operation gives only temporary relief, while a free incision becomes a constant drain.

A poultice, if changed every two or three hours, imparts a comfortable sensation, but should not be a dressing for more than two or three days. Compresses of lint do better, especially if wetted with hamamelis or other agreeable liquid.

But, support is what an inflamed breast needs. A handkerchief let down from the neck and cushioned beneath a sensitive mamma offers some relief, but is not easy to keep in place. Strips of adhesive plaster may be utilized to keep the fold of



handkerchief where it should be, yet the supporting medium affords no compression. To impart both support and compression to an inflamed mamma, there will be needed cushions of cotton-wool, a common roller bandage several yards long, and a dozen plain or safety pins. The bandage should not be less than two, nor more than three inches wide. If both breasts are to be treated the bandage should be longer than for one gland. It may begin under one breast, the left hand holding it and at the same time lifting the gland. An assistant may do the holding and supporting while the operator carries the roller over the opposite shoulder or side of neck and across the back, under the arm and breast, the fabric holding the end of bandage *in situ* and supporting the gland. A few turns are to be made in this way; and then the other breast, after a turn about the waist, is to be enveloped in the same way. The first diagram represents a front view of the dressing, and the second picture the posterior dressing. Lint should be used where the bandage rests on the root of the neck. By depressing the com-



presses of lint beneath the breasts the nipples may be brought within the child's reach. Strips of rubber adhesive plaster may be utilized in place of the bandage. I have used the adhesive strips with satisfaction.

Recurring abscesses in tuberculous breasts may prove damaging to the functions of the glands; and the patient is vitally depressed for weeks and even months. Few morbid conditions of a surgical nature are more perplexing than suppurating mammary glands. Burrowing sinuses form, and refuse to heal until caustics are used, and the constitutional depression is counteracted with iron, arsenic, and other vital stimulants.

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### OBSTETRICAL OBSERVATIONS.

The first work on the obstetric art which appeared in English was a translation of Eucharius Rodion who wrote in High Dutch. The rendition was made by Dr. Thomas Raynolde, in 1565, under the realistic title—"The Byrthe of Mankinde." The work at present is worthless, except as a literary curiosity. The author drew largely from Hippocrates, embracing the blunder that "we should turn the child to the natural position even when the feet present." It is a severe criticism upon the observing powers of both Rodion and Raynolde that the "normal position is when the face and foreparts of the foetus are toward the foreparts of the mother." Afterwards Ambroise Pare, an ingenious French surgeon, formulated a few sound obstetrical rules, and these were amplified or expanded by Mariceau, and later the Chamberlens rediscovered the obstetric forcep, which contributed not a little to the systematizing of the science of midwifery.

An examination of the pelvic canal of the "inferior animals," and a comparison of the mechanism with the shape of the foetal head at the time of parturition, show a conformity of skeletal parts to a given end—to delivery through labor. Without muscular effort on the part of the womb—parturient throes—the foetal head would not be compelled to conform in shape or diameters to those of the almost unyielding canal to be traversed in labor.

The skull of the human foetus is comparatively so large that obstetricians have noted the relationship of pelvic and cranial diameters, and reduced presentations and positions to quite easily recognized formulas or rules.



There are many experienced obstetricians who, through tact or dexterity, have attained reputable fame in the delivery of women, yet who have never ascended to the higher levels of scientific midwifery. A practitioner may truthfully boast of having delivered a hundred women, without losing mother or child, or having to resort to instrumental aid; yet he may lose both mother and child in his next case through lack of knowledge possessed by the recent graduate in medicine. A medical man knows little about "turning" until he has had a case of arm presentation or other mal-position that calls for the scientific application of obstetric principles.

Unless a practitioner of medicine have a fair understanding of the different "positions" of the foetal cranium as regards the inlets and outlets of the maternal pelvis, he will at length find himself embarrassed through lack of a few points in the mechanism of labor familiar to the merest tyro in scientific medicine. A big pelvis or an unusual turn of events may help an ignoramus out of a perplexing difficulty—may permit him to say that he has little need of elaborate rules—but the best obstetricians know that strict observance of formulated methods will occasionally secure a fortunate issue that could not otherwise be obtained.

The scientific accoucheur is able to deliver a woman *in his mind*—he is trained to see the relative attitude of the unborn child to the mother—he contemplates the back of the foetus as turned to the maternal belly, with the face of the child to the hollow of the maternal sacrum. He is thinking of the *first position*, which, fortunately, prevails in nine cases out of ten. He enjoys this enormous advantage in his speculations and cerebrations. In his first labor case there are nine chances in ten that he has to manage a case of first position, and that the circumstance favors a safe delivery. What a preponderance of good luck in favor of an ignorant midwife! Well, in one case in fifty the *second position* may be encountered; but the rarity is almost too great to pay for studying it up, especially as it generally turns out well. Why bother one's brains about a contingent that occurs so rarely? But, again, the *third position* happens once in a dozen cases of labor; and the circumstance endangers the lives of both mother and child; yet such labors quite often terminate happily, therefore why worry about a very remote accident? It was a "face presentation," and quite excusable for certain adverse incidents! Nobody is going to



blame the doctor for a "still-birth," especially as the true cause of death is not known, or is pardonable.

Inasmuch as the *fourth cranial position* is only a counterpart of the *third*, it is not profitable to discuss it until the latter is comprehended. Both—the third and fourth—are apt to terminate in what are ordinarily denominated "face presentations," the child's chin rolling from under the pubic arch, and the elongated crown sweeping through the perinæum, stretching it to the utmost, and effecting laceration in most instances.

Before "position" is considered in an obstetric sense, it is proper to understand the term *presentation*, which means the part of the child which occupies the *os uteri*. It is in accord with good usage to speak of head and breech presentations, and it is just as defensible to assert that a shoulder or a knee *presents*, the expression signifying the part of the child's body which is first touched by the accoucheur's finger. The word *faulty* may be made to qualify such presentations as are not likely to terminate without obstetrical assistance. An arm presentation would be decidedly "faulty."

There are two classes of cranial positions,—forehead looking backward, and forehead looking forward. And each has two varieties: the forehead may look backward with a twist, turn, or inclination to the right or to the left; and the forehead may look forward with an obliquity to the right or to the left of the median line of the pelvis. Now these two kinds of position—forehead backward or forward, and the two varieties—right and left oblique, make "*four positions*." Practically it makes little difference whether a cranial position be inclined to the right or left, but it is highly important for the obstetrician to know whether the forehead of the child looks forward or backward. My endeavor is, after knowing the presentation is by the head, to ascertain whether the position be *occipito-anterior* or *occipito-posterior*,—whether the crown or occiput of the child's head be directed forward or backward. If the crown or occiput look *forward*, and be turned to the left of the pelvic symphysis—to left ilio-pecteneal eminence—the forehead is at the sacro-iliac junction, and the "position" is the *first* and the commonest of all. The longest diameter of the head is in the greatest oblique diameter of the pelvis, and is practically the same as the *first position*. And it would simplify scientific obstetrics if we had but two cranial positions—the one with the forehead looking backward and the other with the forehead looking forward. But the four subdivisions having been accepted by all



the great obstetricians of the age, a reduction to the two general positions — forehead backward and forehead forward — can not be made to take the place of those universally recognized. But the student of obstetrics may fix in his mind the two kinds of positions, and then the two varieties. If the child's head be at the entrance of the pelvic brim, and it be necessary to employ forceps to secure speedy delivery, it makes no difference whether the position be *first* or *second*, for the blades of the instruments follow the curves of the child's head until they "lock," and then the application of the force to the handles swerves the natural rotatory course of the foetal cranium as it passes through the pelvis. At this point it may be remarked that the manipulator of forceps is apt to neglect the curve of the axis of the pelvis, and to end the delivery with rupture of the perinæum. Near the close of delivery the handles of the forceps should project forward so as to rest upon the abdomen of the patient.

Whether the child's head be in the *first* or *second* position while traversing the pelvic canal, its crown stoops to pass under the pubic arch, and then suddenly rises. This movement leaves the symphysis pressing into the back of the child's neck and the child's face is first compressed and then scraped by the perinæum. In the *first position* the median line of the occiput is appreciably to the left of the symphysis, and in the *second position* it is as much to the right of the center, yet as this moiety of variation is to be obliterated a minute later when complete rotation is effected, is it essentially important whether the *position* be of the *first* or *second* variety?

To further illustrate the attitude I have assumed, let the reader consider the *third* and *fourth* positions, which bring the forehead of the child forward, and carry the occiput to the right or left sacro-iliac junctions. The longest diameter of the child's head will correspond with the greatest pelvic diameter, which is not antero-posterior but oblique. In the recognized *third* position the child's forehead is appreciably to the left of the symphysis, and the occiput is at the right sacro-iliac junction; and in the *fourth* position the forehead is a little to the right of the symphysis, and the occiput presses the left sacro-iliac articulation or synchondrosis. At the termination of the delivery of the head the forehead of the child passes under the pubic arch a little to the left or right of the median line, yet gets to the middle at the very end of cranial delivery. Of what vital importance is it, then, whether the third or fourth posi-



tion is taken? It is assumed by obstetrical teachers that a knowledge of the right or left cranial position enables the accoucheur to deliver the shoulders with greater facility. In reply to this I would say that in what Meigs calls *restitution*, or the restoration of the head after its escape from the vulva to the obliquity it took in passing through the pelvis, the restored attitude indicates the position of the shoulders; and the use of the forefinger is to find which shoulder is in advance and to be assisted in its progress outward.



In the first and second positions, which are the commonest of all, the above diagram represents the progress of the child's head in its passage through the pelvis. As depicted, the crown escapes the pubic bar before the face distends the perinaeum to the utmost. As soon as the head is born, it quickly turns through the quadrant of a circle, so that the face, instead of looking backward, is made to look to the right or left. This turning is Meigs' "restitution." It occurs at the completion of the head's delivery. The diagram represents the child's face looking to the maternal right, but rotation in the pelvis forces it to look directly backward, till at the entire birth of the head it is permitted to resume its original attitude; it turns to the maternal right again.

If the face of the child looked to the maternal left—ordinary second position—it would be restored to that direction after the head's delivery.



During labor it is possible for one position to be transformed into another, under the force of parturient throes, especially if the pelvis be capacious; and the change may occur without the accoucheur being cognizant of the movement.

Ninety per cent. of all deliveries are represented in the above diagram. As previously, stated it makes no substantial difference whether the crown of the child's head be a little to the right or left of the median line. In either case the face of the child sweeps through the hollow of the sacrum, and at length bulges the perinæum. In ordinary cases the obstetrician does not stop to consider whether the child's occiput be in the *first* or *second* position. However, if he were to use forceps he would ascertain which position had to be dealt with.

Normal labors with the child's head in the first and second positions rarely need instrumental interference, but in the event of *impaction*, the time will come when it is important to consider the contingencies of the case. After a woman has been under parturient throes for thirty-six hours, she is likely to exhibit evidence of exhaustion. The throes become feeble, and do not move the child in the pelvis. This lack of efficiency is learned by a finger in the vagina while a "pain" is on. The patient is hot and restless; her breath is offensive, and her mouth is parched; she moans and calls for relief. She bears the general appearance of a worn-out sufferer. I am not speaking of those primiparæ who are worried with 'preparatory' pains for a day or two before true labor sets in; but of parturient women who have been in active labor for thirty-six hours, more or less, and are thoroughly exhausted. Such patients need the relief obstetric forceps may be made to furnish.

A certain degree of preparation is needed in a forcep case. A good nurse should be present, and some one to administer the anæsthetic. If the accoucheur have not with him forceps and chloroform he should send for them long before they are to be used. Many obstetricians take these agencies with them when called to a labor case. Such is becoming the custom among progressive practitioners. The habit need not lead an accoucheur to use forceps needlessly early, but is taking time by the forelock. I commend the practice of being prepared for emergencies.

Well, it is decided to employ obstetrical forceps; and enough competent persons are present to execute the operation. The patient is placed across the bed with her feet in chairs and her hips quite on the bed rail, the mattress being covered with a



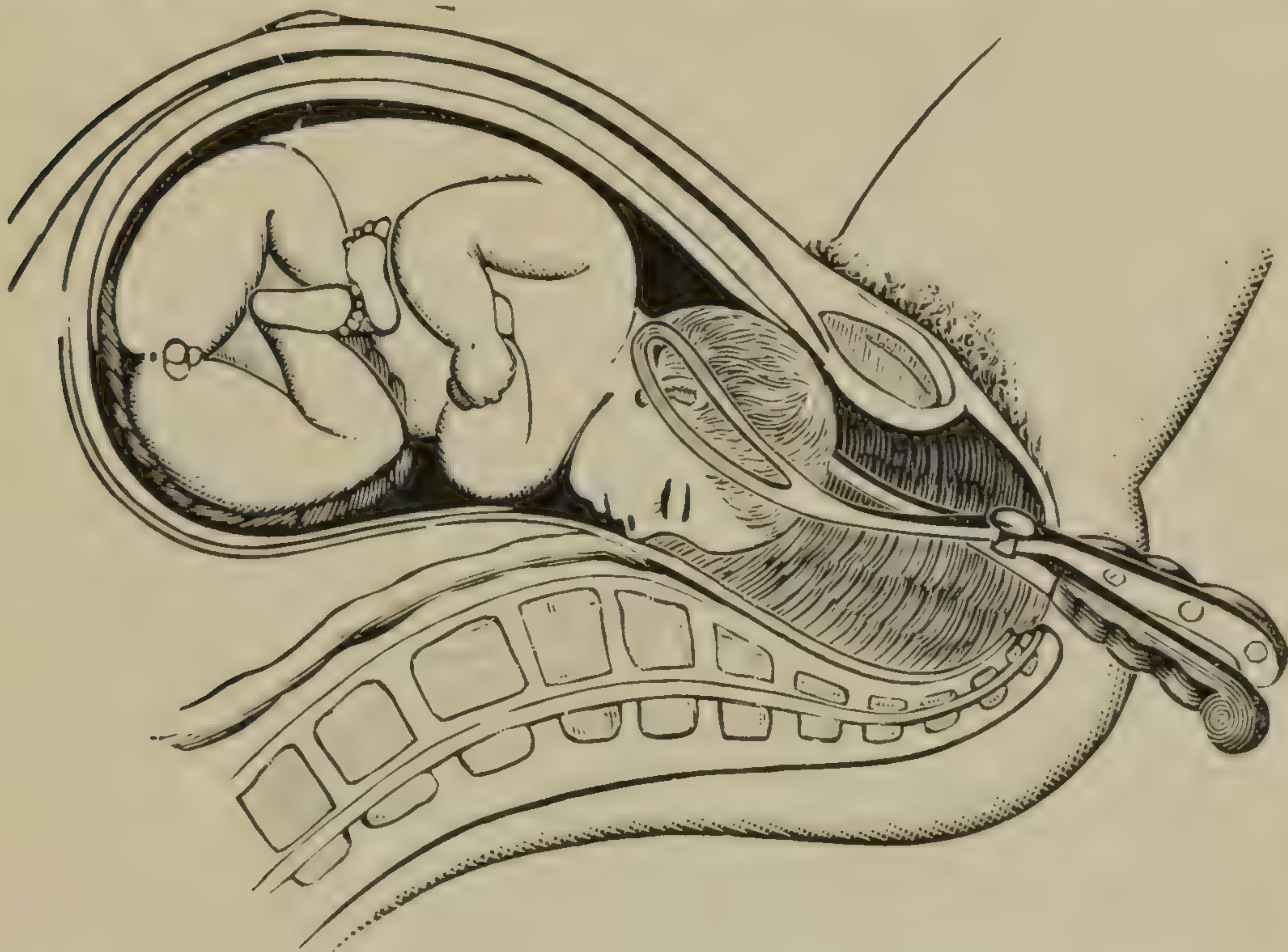
rubber cloth. Worthless absorbents are to be on the floor or carpets beneath the patient's pelvis to catch blood and fluids.

The anæsthetic is administered slowly at first, then faster, till at length the lethal vapor benumbs the recipient; but it is to be withheld when heavy breathing is observed. The operator on a stool between the patient's limbs is ready for action. The warmed and oiled blades are at command. The bladder has just been evacuated with a catheter, and the labia well anointed with lard-oil or vaseline. The forcep having the pivot is used first. The handle is elevated—held high—while the blade is gently introduced within the vulva and inclined to the patient's left—operator's right—till it slide between the child's cranium and the mother's ischium; and as it is carefully slid inwards without considerable force, and comes in contact with the sacrum near the bone's promontory; but this is not enough. The entering blade must have its course continued by depressing the handle toward the coccyx. This brings the blade forward so it shall not impinge on the sacrum's promontory, but goes upward till its hollow fits on the side of the child's head. The next step is to apply the other forcep blade. It is to be manipulated much like the first. The handle is held high, almost to the woman's umbilicus, and the blade is gently made to enter the vulvar aperture, being directed to the opposite side of the child's head and the mother's ischium. After the blade reaches the sacrum the same obstruction is met that existed on the other side; but by depressing the handle till it hit the other, and then depressing both, the second blade will slide into place—its hollow will fit the oval aspect of the child's head. The forceps are now in a condition to “lock,” and will do so with fairly gentle manipulation, while the handles are depressed, rocked, and pushed upward. The patient is under the anæsthetic, and does not suffer appreciably. The operator is now ready to apply compressing and extracting force with his hands grasping the handles of the instruments; and if the blades be not too thin and flexible they will hold their proper positions on the child's head. The attitude of the patient on the extreme side of the bed is now appreciated. The forcep handles can be depressed as the extracting force is applied, which could not be if the woman laid on her back in bed. However, I have employed short forceps, with the child's head in the hollow of the pelvis, the patient resting on her back in the middle of the bed. But, if the child's head be as high as the pelvic brim, and long forceps have to be employed, the woman



must have her nates rest on the side of the bed, to make way for depressing the handles of the forceps and manipulating them at the commencement of the instrumental delivery.

I have thus been particular that the novice may comprehend the art of introducing obstetrical forceps; and he is to bear in mind that the handles rise as the child's head descends into the hollow of the pelvis, and so on to the completion of delivery. However, it is generally best to unlock and remove the forceps when the child's head can be manipulated with the hands,—there is less danger of rupturing the perinæum. In delivering



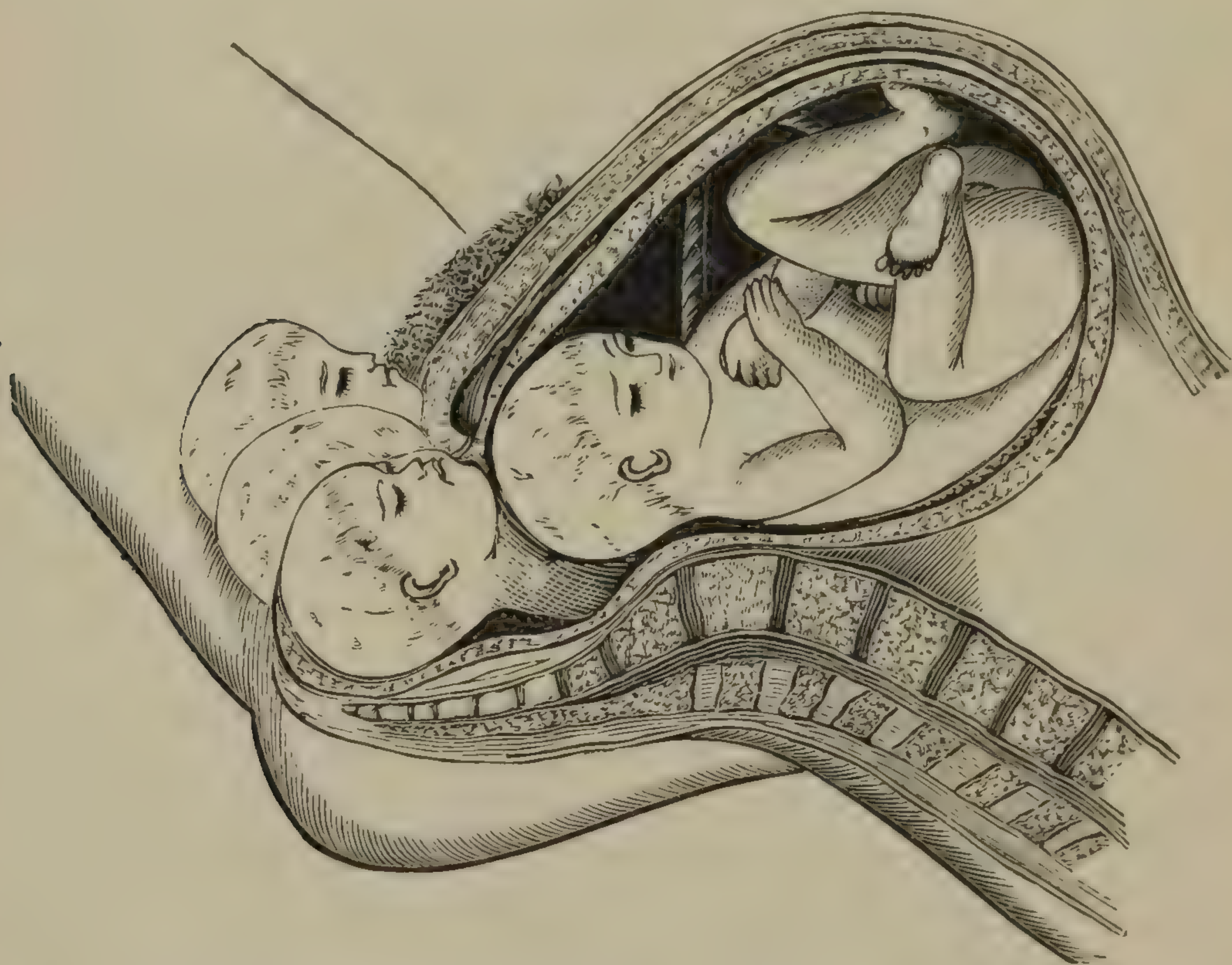
a woman with forceps, parturient throes are to be observed if there be any, force being applied when a pain is on; but in most cases the woman is so considerably exhausted when forceps are employed that uterine contractions are not perceptible,—the forceps have to do the delivering. In cases of impaction great force is needed to move the child's head from its incarceration. I have had to put forth so much strength that several persons were required to hold the patient on the bed. I have known a female accoucheur to fail through lack of physical capacity to drag the child from a "lodged" condition.

#### THIRD AND FOURTH POSITIONS.

What the obstetrical teacher calls the third and fourth positions I denominate the second, making two altogether; but I have no right to make the abbreviation. However, I can pre-



sent a schematic view of what I mean, and endeavor to make my readers see the discrimination I would introduce. When the face looks toward the pubic symphysis, or a little to the right or left of it, the "position" is opposite to the "first" already depicted and described, yet must, in the obstetric parlance of the day, be called the third and fourth positions. The chin of the child is to the sternum, and the crown sweeps through the hollow of the sacrum. The schematic diagram represents the cephalic positions and movements of the child. If in such a delivery the chin of the child can be kept to the sternum, the crown may slip over the brim of the perinæum, and offer an escape for the child's head without perineal rupture; but if the face get in advance of the occiput, the crown almost invariably tears the perinæum.



It would be a desirable trick to rotate the child's head at the brim of the pelvis, converting a third and fourth position into a first and second, but it can not be executed one time in a hundred. If two fingers in the vagina press upward on the forehead when a pain is on, the uterine throe may convert the third into the first position, yet such a twist need not be expected. I shall never forget a troublesome case that was turned over to me by a friendly physician. The woman had heart disease, and was a poor subject to bear children. Her pains were



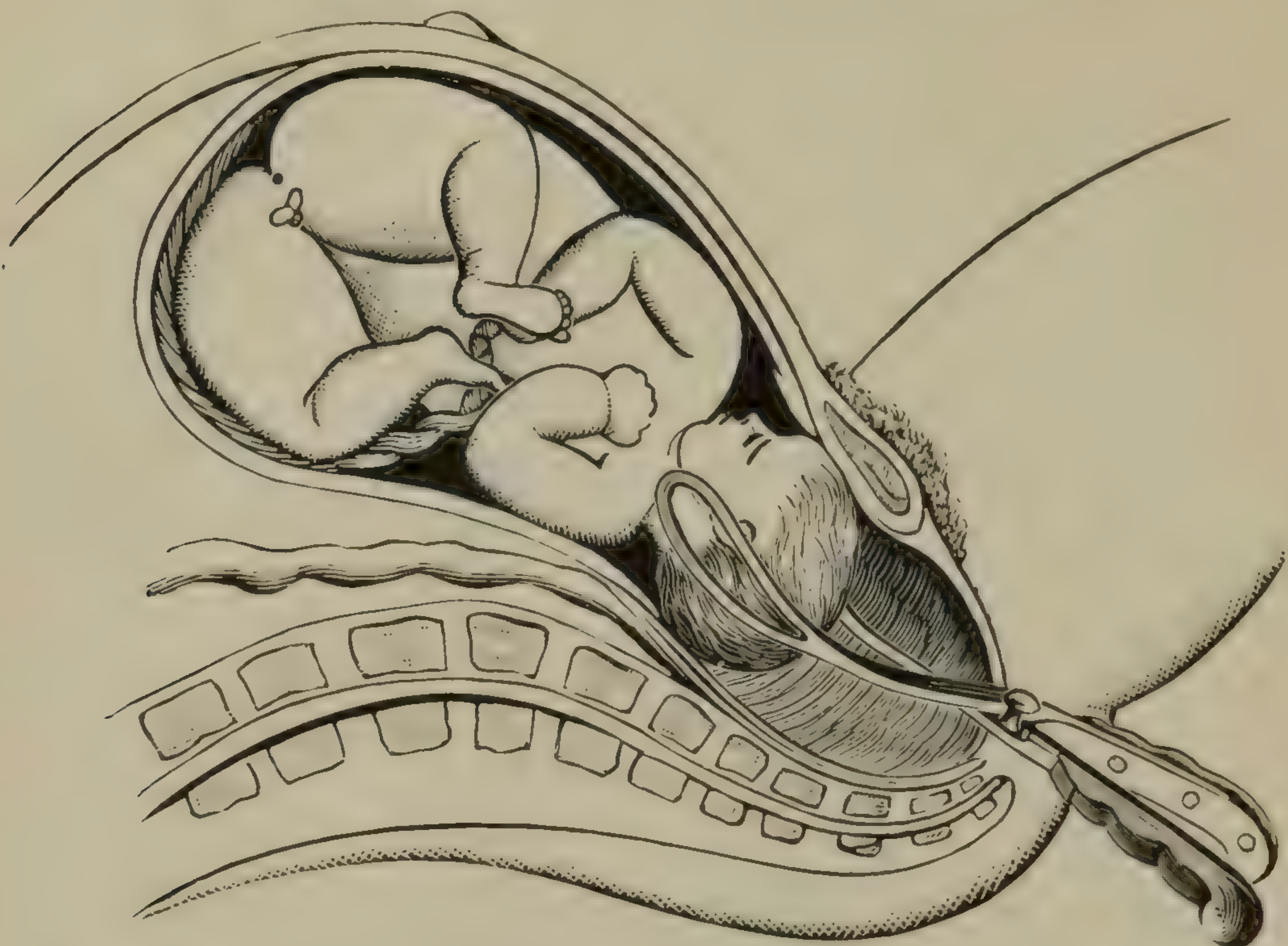
feeble from the start, and after twenty hours of ineffectual worry the child's head had not engaged in the superior strait, but could be pushed with the fingers in any direction. Every phase of the case was inauspicious and threatening. The "position" was occipito-posterior, the face looking forward and to the left of the median line; yet the entire head was above the brim of the pelvis.

No manipulation of mine would overcome the faulty position or fix the head snugly in the pelvic brim. Altogether the surroundings were bad; the lying-in-room was small and stuffy, the husband was fidgety, and the nurse incompetent. I went for chloroform and forceps at midnight; and wished I had efficient assistance, for it is not easy for an obstetrician to administer an anæsthetic and use forceps at the same time. After I had chloroformed the patient, I placed her in an attitude favorable for the use of the forceps, and made the husband continue the anæsthetic. He executed the order very unsatisfactorily. The nurse managed one limb and I the other. The first blade went into place without much trouble, but the second was not readily directed into such relation with the other as to secure a "lock." The os uteri was not large, hence the first blade pulled the orifice to one side, making it difficult to insert the second blade. After manipulating for twenty minutes I fastened the blades upon the child's head, and dragged it into the pelvic brim. I then changed the grasp of the blades, the attitude of the skull exhibiting a "face presentation." A second grip of the forcep blades reached over the child's chin and sides of the face, then over the ears to the occiput. The latter received undue compression, but no damage was inflicted upon mother or child. In other words, the instrumental delivery was a success. In all my obstetrical experiences I have never been so perplexed in attempts to place the blades of forceps in locking relations. When the head of the child is above the pelvic brim it is rare to have the blades of forceps come into their proper relations at once; and in this case there was unprecedented trouble. I had to bring the woman's nates over the edge of the bed in order to depress the handles of the instruments to points low enough to bring the tips of the blades as far forwards as they had to go. To do all that had to be done without professional assistance was a test of my capabilities.

The accompanying diagram represents the grip I made on the child's head with the obstetric forceps; and the depressed state of the handles at the time compressing and extracting



forces were exerted. I effected delivery without rupturing the perinæum, though the barrier to delivery was so elastic and yielding that fortune favored my efforts and attentions.



Fortunately only one case in ten has the face presenting forward, the position being third or fourth in obstetric nomenclature. It is not to be inferred that such cases are always to be delivered with forceps, yet instrumental aid is required oftener than when the presentation is in the first or second positions. It is natural or normal to have the crown of the child's head glide under the pubic arch; and abnormal for the face of the child to look to the pubes.

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#### THE USE AND ABUSE OF OBSTETRIC FORCEPS.

Obstetric forceps are no more nor less than steel hands. They occupy little space on account of their slender construction, and they grasp a child's head with a firmer hold than is possible with any manual grip: the blades are so fashioned that they do not inflict damage to either mother or child, and their handles are levers on which may be displayed both compression and extraction—reducing the diameters of the foetal skull, and facilitating delivery through traction.

The instruments have no place in normal labor, but are constructed to aid the accoucheur when uterine inertia, lodgement,



and other damaging delays retard delivery. They are life-saving and not death-dealing implements. For obvious reasons, obstetrical forceps are not in good repute with a practitioner of medicine who knows little or nothing of their marvelous powers. On the other hand, the most enthusiastic champions of the implements are among those who have used them oftenest, and best understand their transcendent capacities as aids in obstructed labor. The obstetrician who has employed forceps on repeated occasions becomes an ardent admirer of the pain-lessening and time-saving invention.

A novice or a bungler might do harm with obstetric forceps; and in his perverseness charge the implements with the damage; yet as much may be said of any piece of mechanism manipulated with awkward hands. I would say that one ambitious to enter the higher walks of obstetrics should at once purchase a pair of obstetric forceps—"possession is nine points in the law.") The savage who skilfully brings down game with a bow and arrow, will secure more with a gun as soon as he learns to use it advantageously. The blades of obstetric forceps are so well shaped that in their introduction they slide along the vulvar aperture, the vaginal canal, and within the opening of the uterus, as if welcome to the way; and the shape of the child's head guides them into place. Almost the only point to be kept in mind by the operator is that the ingoing and outcoming instruments move along a series of ever-changing planes—in a *semicircle*. The handle of a forcep is almost perpendicular to the patient's abdomen as the blade enters the genital track, and descends in a sweep as the blade advances toward the brim of the pelvis; and it is to be remembered that the promontory of the sacrum will prove an obstruction to the entering blade unless the handle be depressed till it push the perinæum to the coccyx. Only thus can the curved blade be made to escape obstructions, and grasp a child's head at the pelvic brim. Very little pushing force is needed to carry either forcep blade to the position it is to occupy on the side of the foetal cranium. The fenestra of the blade renders the instrument light, and admits the parietal protuberance of the child's skull. The ear generally drops into the slot. After the pivotal blade has been carried into position, its mate is to be introduced as the first was made to enter; and then the faces of the handles approximate each other and the hinge inclines to lock. If the handles do not incline to juxtaposition, the pivotal handle must be depressed still more, and gently pushed upward;



then the other is to be manipulated likewise, and the two handles will lock quite readily. *To depress the handles as the blades are gently pushed along the curves of the pelvic canal, is the secret of a successful application of the obstetric forceps.* If this brief rule be fixed in the mind—be made an axiom in operative midwifery—a novice becomes an expert.

The accoucheur who has attended many women in confinement, and never used an implement to aid in delivery, is apt to hold his obstetric ability in too high estimation; he does not consider that in the issue of chances running in his favor, he is about to encounter a case he can not deliver without instrumental aid. He may have been patient, skilful, and adroit, but he has been lucky withal; he is near the end of a career which is to terminate in disaster. In every two hundred labors, more or less, one will occur which must result in death, if forceps be not brought to the rescue. The accoucheur may encourage the lying-in woman to keep up her courage and persevere; he may assure her that she is “enduring only what the Almighty in his infinite wisdom has imposed upon woman-kind for the perpetuation of the race,” and receive an assuring response; yet human nature has its limits of endurance,—it will at length succumb to prolonged and exhaustive efforts. An unwarranted risk is being incurred through the obstinacy and bigotry of an overconfident-obstetrician. The woman is dying of exhaustion, yet the stupid medical attendant is ambitious to say that he has never had to summon aid!

What a silly piece of egotism!—what a professional error!—what despicable mal-practice, whether discovered or not! Has a man no conscience when he must know that he is holding an innocent and ignorant victim over the brink of the grave, while it is in human power to save?

How can an obstetrician be shallow enough to boast of his skill while permitting his confiding patient to suffer for naught during hours and hours of useless and ineffective agony,—imposing upon her what she need not endure,—imploring her to martyr herself when she might be delivered *tute et jucunde* in fifteen minutes. The impudence of such pretenders is hard to be believed; but the fact is plain that the time approaches when the obstetric practice of conceited blunderers will become pinchingly restricted. Intelligent women are demanding the skill of operative obstetricians—of those who deliver with forceps as soon as a labor is becoming needlessly prolonged. The poor have to put up with midwives because they can not afford



to pay skilled accoucheurs, yet they are learning to know that ignorance is dear at any price. In Europe there exist lying-in hospitals, where indigent women may secure the highest order of obstetric talent, and at a very small expense. In the large cities of America, a majority of lying-in women are delivered by untrained and uncultured midwives. These *sage femmes* encounter difficult cases, and at length have to surrender them to skilled obstetricians; but to secure their fees and to escape the necessity of calling assistance, they often hold on to patrons till it is too late for the operative accoucheur to save a life in peril.

The abuse of obstetric forceps is, in my opinion, quite infrequent. An ambitious and blustering practitioner may conceive the rash idea that a reputation for skill is the easiest or quickest attained by employing implements upon the slightest excuse; and a fledgling professor of obstetrics may seek notoriety among students by exploiting the frequency he resorts to operative midwifery. Then, again, a mercenary practitioner may display his dexterity in the use of instruments for the purpose of collecting a large fee. Kindred tricks practised upon the unwary constitute what may be properly regarded as abuse of operative midwifery. I have known an accoucheur to employ forceps early that he might be released from the lying-in room sooner than he could be if he let nature have her course. I can not say that harm ever came from the interference, but the practice is reprehensible. I believe in being released as early as practicable without in the least compromising the best interests of the patient. Short labors exhaust but little, while long ones are damaging if not dangerous. I do not consider that a physician, when he makes an obstetrical engagement, is never to consult his own conveniences. If an important matter be on hand, and the early use of forceps will release him and not harm the patient, I do not see why he has not a right to accommodate himself. If it be justifiable to administer an opiate to retard labor, it may also be defensible to prescribe ergot to hasten parturient throes. On the same principle the forceps may be utilized to expedite delivery. I would not consider it necessarily an abuse of instruments if they be employed simply to save time. At least, if a parturient woman consent to the use of instruments after their nature has been explained to her. In other words, the accoucheur is justified in a resort to forceps merely to lessen the number of labor throes. In such a case I can not see how the charge of "meddlesome midwifery" can be sustained. A definite plan is proposed and skilfully



executed, while the old advice to "support the perinaum" is useless and often damaging.

In normal labor there is exceedingly little for the obstetrician to do, while in a complicated parturition the utmost skill of the experienced practitioner is called into activity. If prolonged labor be devitalizing and dangerous, as has been stated, it is philanthropic to abridge the risk by ingeniously displayed efforts, though as a penalty for "original sin" the woman is condemned to bring forth in sorrow. It is humane to administer an anæsthetic to assuage pain, therefore a woman wrestling with labor pangs should be benumbed with a lethal agent. The transgressions of mother Eve were expiated long ago.

The leading features of medical practice are to lessen human suffering and to prolong life; and such duties are never made more conspicuous and emphatic than by ameliorating the pangs of labor. The expressions of a labor throe do not elicit much sympathy when the woman is vigorous and the parturient state brief. But the wail of a sufferer from prolonged, exhausting, and useless efforts, awakens our deeper sympathies; the accoucheur is moved to consider and contrive means of relief. The pains come and go with periodical frequency, yet accomplish nothing,—they do no good, but a certain amount of harm in that they will kill! If the medical attendant has entertained a silly prejudice against the use of obstetric forceps, now is the time to be converted to advocacy of their employment.

In reviewing the history of instrumental obstetrics I see that vesico-vaginal fistulæ and lacerated perinæums have been charged to operative interference; but a close analysis of reports of such accidents indicates that the same lesions occur when no instruments are employed, and even when deliveries are unattended professionally. From a scrutiny of all carefully reported parturitions, the skilful use of forceps has not been attended with an unusual number of perineal rents and vesico-vaginal fistulæ.

To avoid laceration of the perinæum, it is well to unlock and remove the forceps just before the termination of the delivery. The operator's hands are thereby liberated—made free to manipulate the tense perineal structures. The manipulation consists in lubricating the child's head and the lining of the perinæum with lard, vaseline, or other unguent, and by lateral pressure with the fingers try to stretch the yielding and elastic structures, especially manipulating when the throes are off, and the head recedes. The perinæum is not to be "supported" ac-



according to old directions, but rendered thin and pliant. At the end of every pain the forefinger is made to sweep along the inside of the perinaeum, imparting lateral pressure, thus making room for the bulging head when a labor throe is on. Care should be exercised not to nick the very rim of the perineal border, for the slightest rent is the beginning of a damaging laceration. A firm pressure of the finger forces laterally any fat or fluids which may be uselessly occupying space. Although considerable time be occupied in the manipulation, the perineal structures become prepared for the forced stretching to be undergone. The extreme tension is when the foetal head passes the vulvar ring. If the head pass without inflicting a rent, the shoulders and trunk can be born without undue resistance.

While a child's head is bulging the perinaeum when a labor throe is on, the accoucheur's extended thumb and finger press the stretched structures downward and backward to make room for the child's face to slip over the perineal brim. Finally, as the border of the perinaeum is bulged extremely by the child's advancing head, the finger may be employed to turn the edge of the resisting structure from the protruding head, as the rim of a rubber shoe is turned from the heel of a boot. Adroit manipulation of this kind does not endanger laceration, but averts the accident. I have long practised what I am now bold enough to teach. Rash efforts of the kind might prove damaging, but I advise gentleness tempered with efficiency.

In the conduct of instrumental delivery, little attention should be paid to what Mrs. Grundy may say, whether the issue be favorable or otherwise. To be sure, we can not ignore public opinion, yet the obstetrician is the only competent witness in the case. If he has boldly and discreetly-executed what his education and experience warrant him in doing, he need not fear the Grundys, though they be backed by envious rivals in the profession. The error is not, as a rule, in using forceps too early, but in putting off their use until too late to accomplish what is scientifically demanded. "How long has this woman been in labor?" I once asked a venerable practitioner, who sent for me to assist him in a prolonged labor. "Forty hours," was his reply; and he complained that he was utterly worn out. And if he was exhausted, what must have been the woman's condition? The point in the case was that the old doctor did not like to acknowledge that he had to summon assistance. He said he was opposed to the use of instruments, alleging that they were dangerous and death-dealing.



But here was a case right on his hands, where a timely employment of forceps would have saved both mother and child; yet the parturient woman was vitally exhausted. She was ghastly in appearance—was cold—yet said she was burning up; she asked to have a window opened; she gasped a few times, and died! Was the holding of the case till it could not be rescued to be dubbed malpractice? I did not utter a word to create distrust, or to reflect upon the skill of the family physician; but I regard sins of omission about as grave in medicine as those of commission.

In the management of a lying-in woman her strength is to be estimated from time to time; she is to have supporting and sustaining treatment; she is to be urged to swallow hot table tea now and then, and to take nutrients though they do not stay down long. She is to have reasonable encouragement and assurance as labor progresses; and if forceps are regarded as necessary, or problematically so, she is to be instructed as to their nature and efficiency. If the obstetrician have not his reticule of instruments at hand, he should send for it before he be everlastingly too late. The accoucheur feels better when mechanical aid is within reach. Not one lying-in woman in fifty needs to be delivered with forceps, but when the need is present it is pressing. The prudent obstetrician, if called a distance to attend a labor case, will take forceps with him. At least I think he should. I do not always obey this rule, but on several occasions I have blamed myself for neglecting the duty. It is not much of a burden to take along a few instruments.

A practitioner of medicine who has successfully delivered a hundred women is not necessarily an expert in this branch of professional labor; he must have had experience with difficult labors to have skill developed. Let him manage a case with an "arm down," and have to "turn the poles of the child," to get out of the difficulty, and he will have his capacities tested in an emergency. Reading will help, but the practical application of principles alone develops efficiency.

I may here remark that there are two kinds of obstetric forceps in general use—the *long* and the *short*. The former are designed to be used when the child's head is above or at the brim of the pelvis—labor throes being inadequate to engage the cranium in the superior strait, and send it along its course. Before using forceps the cervical aperture of the uterus must be sufficiently open or dilated to permit the entrance of the blades; the membranes should be ruptured, and an anæsthetic em-



ployed. The operator is to bear in mind that the blades, while entering, are apt to be arrested in their course by the projecting promontory of the sacrum. To escape the projection the handles must be depressed to the coccyx, as already stated. Luckily, the handles will not lock till the blades reach the place where they belong, or come into proper relations with the child's head. If the handles will not approximate each other, the blades rest awkwardly upon the foetal cranium. In primiparæ the high standing perinæum resists depression of the handles, yet they must be firmly depressed before the blades can be made to come forward of the sacral promontory, and rise to the place where they belong, or to a point where the child's head readily receives their clutch.

Short forceps are constructed to facilitate delivery when the child's head is in the pelvic cavity or at the inferior strait—delay in delivery depending upon uterine inertia or exhaustion, or possibly upon impaction. The lighter instruments are handy to expedite parturition when throes become feeble or inefficient near the termination of labor. Long forceps are a necessity when the child's head is high; and short ones are convenient to hasten delivery that is retarded near the close of labor.

In the selection of forceps the practitioner is to choose a long and strong pair, and a short and somewhat slender pair, testing the temper of both by pulling the closed blades over the fist or a firmer ovoid. I would emphasize this injunction because I have both bent and broken blades when the accident was most unwelcome. If the blades be too thin and slender, they will slide off the child's head, inflicting the direst damage. Obstetric forceps, as before alleged, are not designed to maim and destroy, but to shield and preserve. As a rule, a child's life is safe as soon as forceps are locked upon its head, and the mother can hardly be harmed.

In the use of short forceps the handles have to be grasped with firmness, or the blades will slide off the child's head. While assisting a doctress I noticed that the handles of the instruments parted appreciably, and the blades appeared in the vulvar aperture without taking the child's head with them. I called attention to the defect, and asked the operator to replace the forceps. She did as directed, but could not grasp the handles firmly enough to keep the blades from slipping. At length she effected delivery, but the child was dead—killed by the inefficient use of the instruments. I told the doctress that female physicians almost always bought short forceps from the



fact that the implements were light, but that they could do much better with long forceps on account of the greater leverage in the handles.

Twenty years ago I was called to assist two medical gentlemen in the delivery of a woman. When I arrived at the house, the accoucheurs were trying to make a long pair of forceps lock. The patient rested on her back with her feet in chairs. At a glance I discovered the cause of their trouble, and with confidence waited my turn to try. As soon as I was asked to manipulate the forceps, I put aside the chairs, placed the woman's feet by her hips, and then drew her haunches to the edge of the bed. This position made me master of the situation. While introducing the blades they came against the old obstacle, the promontory of the sacrum, but by *depressing* the handles I could shove the instruments upward to a point where they fell into proper relations with the child's head. The instruments then readily locked, and the delivery was completed in a very few minutes. Although one of the physicians was a teacher of obstetrics, he acknowledged that the manœuvre was a novelty to him.

The ever-changing course of the child's head in its descent along the semicircular curve of Carus, while passing through the pelvic canal, is to be borne in mind by the obstetrician whether forceps be used or not. If the crown of the child's head be at the left pectineal crest or the obturator foramen, and the face to the right sacro-iliac junction, the obliquely slanting planes of the ischia revolve the cranium as it advances, so that the child's eyes look in an ever-varying direction.

A forcep blade, in going to place, is guided by the fingers till it enters the womb; and then the protuberances of the child's head receive the concavity of the instrument, and direct it into the position designed for its reception. Says Leishman: "The best test of a proper application of the forceps is the perfect locking of the blades after their introduction. There must be parallelism of the handles."

It is well for the obstetrician to examine the perinæum of his patient before he ceases visiting her. If a rent or rupture exist, he should learn its extent, and whether an operation to close the fissure be advisable or not. An unscrupulous gynæcologist may, for the purpose of securing a perinorrhaphy, exaggerate an unimportant laceration.



## RECIPES.

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Several formulas of my practice, which have been mentioned in the text, have become in such demand among physicians, that I have thought best to publish the combinations for the use of those who compound their own medicines.

### ACID SOLUTION OF IRON.

℞. Water, *oj*,  
Nitric acid, *fʒvi*,      M.

Add one ounce of sulphate of iron, and let stand in mortar 48 hours, occasionally stirring with glass rod. Filter, and set aside in bottle with glass stopper. Dose, two drops in water.

### JUNIPER POMADE.

℞ Lard (fine quality) *ʒvi*.  
Paraffine, *ʒv*.  
White Wax, *ʒi*.  
Oil Juniper berries *fʒiii*.  
Fowler's Solution, *fʒii*.      M.

Melt the paraffine and wax first, gradually adding the lard, lastly add the oil and Fowler's solution, vigorously mixing with an egg-beater.

### VIBURNUM CORDIAL.

℞ Black Haw bark of small roots,  
Wild Cherry bark of small twigss, *aa. ʒiv*.

Cover with alcohol and percolate, adding aromatics, and flavorers, with sugar. Dose, teaspoonful in half tumbler of water, repeating every three hours.

This was not compounded for gynæcological medicines, but for delirium tremens; but has proved useful in atony of the female genitalia.

### ESCHAROTIC.

℞ Cosmoline, *ʒi*,  
Chloride Zinc, grs. *xx*,  
Salicylic acid, grs. *xxx*,  
Resorcin grs, *x*,  
Cocaine grs. *v*.      M.

S. Use upon epitheliomatous ulcers, and malignant ulcerations.



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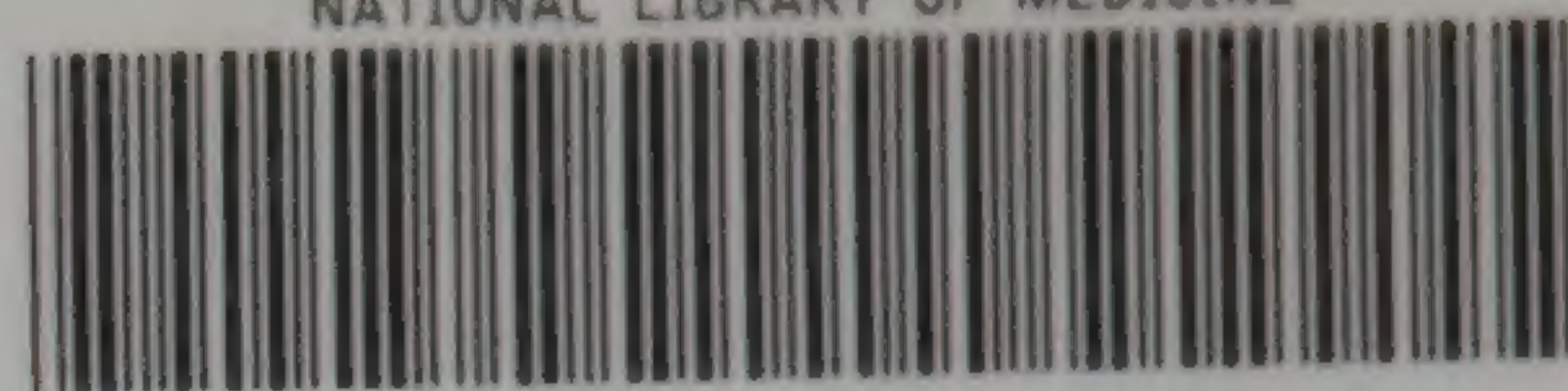








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